

036502

REPORT NUMBER: 201U-VER-03-02

**SAFETY COMPLIANCE TESTING FOR FMVSS 201
OCCUPANT PROTECTION IN INTERIOR IMPACT
UPPER INTERIOR HEAD IMPACT PROTECTION**

**TOYOTA MOTOR MANUFACTURING
2003 TOYOTA TACOMA PICK-UP**

NHTSA NUMBER: C35102

VERIDIAN TEST NUMBER: 8653-FMH-07

VERIDIAN ENGINEERING
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Date: December 20, 2003

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Assurance
Office of Vehicle Safety Compliance
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16. <i>Abstract</i> Compliance tests were conducted on the subject vehicle, a 2003 Toyota Tacoma Pick-up in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure TP-201U-01 for determination of FMVSS 201 compliance. Test failures identified were as follows: None			
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SECTION 1

PURPOSE AND TEST PROCEDURE

This head impact compliance test is part of the FMVSS 201 Upper Interior Head Impact Protection Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-99-C-01005. The purpose of this head impact compliance test was to determine whether the subject vehicle, 2003 Toyota Tacoma Pick-up, NHTSA No. C35102, meets the performance requirements of FMVSS 201, Occupant Protection in Interior Impact. The compliance test was conducted using the requirements found in the QVSC Laboratory Test Procedure No. TP-201U-01 dated April 3, 1998.

SECTION 2

SUMMARY OF UPPER INTERIOR HEAD IMPACTS

A 2003 Toyota Tacoma Pick-up, NHTSA No. C35102, was impacted at various locations throughout its upper interior by a 4.54 kg 50th percentile headform. A total of ten (10) impacts were performed in this test series. The target area impacts were chosen by the NHTSA Contracting Officers' Technical Representative (COTR). A summary of test results can be found on data sheet 2-1. The ten (10) areas chosen for testing were:

AP1	FH1	SR1	RP1	URSR
AP2		SR2R	RP2	RH
AP3				

The selected impact areas on the test vehicle appeared to comply with the performance requirements of FMVSS 201.

Five Free Motion Headforms (FMH) were used in this test series. All five FMH's were calibrated prior to and after the test series. Calibration information are included in Appendix B. Each FMH weighed 4.54 ± 0.5 kg and had orthogonal tri-axis accelerometer pack mounted at the center of gravity (c.g.).

A total of three (3) channels of data for each target impact test was recorded on a Keyser Threde data acquisition system. Data plots along with still photographs can be found in Section 3 of this report.

To document each target area impact test, one Kodak Dktrapro high speed video camera was to record the headform contact with the selected target area.

DATA SHEET 2-1

SUMMARY OF UPPER INTERIOR HEAD IMPACT TESTS

Year/Make/Model/Body Style:	2003 Toyota Tacoma Pick-up		
Vehicle Body Color:	Gray	VIN:	5TENL42N63Z157419
Vehicle NHTSA No.:	C35102	Month & Year of Manufacture:	09/02

Test No.	Code	Target			Approach Angles (degrees)		Velocity (kph)	FMII HIC	HIC(d)*
		X (mm)	Y (mm)	Z (mm)	Horizontal	Vertical			
1	AP3	1911	552	1889	130	30	23.50	248.3	353.7
2	AP1	2043	525	2024	150	20	23.72	544.7	577.4
3	RP2	2592	588	1862	78	1	23.66	698.6	693.4
4	RP1	2609	467	2108	52	17	23.42	560.2	589.0
5	SR2R	2308	475	2106	90	31	23.42	416.6	480.7
6	AP2	1988	-563	1978	230	30	23.64	472.0	522.5
7	PH	1960	-383	2064	180	50	23.65	646.5	654.1
8	SR1	2173	-480	2092	270	25	23.39	311.5	401.4
9	URSR	2319	-376	2152	270	44	23.80	728.3	715.9
10	RH	2599	-349	2112	0	34	23.38	293.5	389.3

Note : Origin of coordinate system is the front center of the vehicle bumper using Toyota's reference coordinate (door striker upper hole : x=2652.8mm , y=749.2mm , z=1444.7mm)

*HIC(d)=0.75446(Free Motion Headform HIC) 166.4

DATA SHEET 2-2

TEST RESULTS SUMMARY TABLE

Year/Make/Model/Body Style: 2003 Toyota Tacoma Pick-up
 Vehicle Body Color: Gray VIN: 5TENL42N63Z157419
 Vehicle NHTSA No.: C35102 Month & Year of Manufacture: 09/02

Target (mm)				Horizontal Impact angle	Vertical Impact Angle	Velocity (KPH)	FMH-HIC	HIC(c)
	X	Y	Z					
A-PILLAR DRIVER SIDE								
AP1	2027	-500	2064	R=3		-	-	-
Rel. AP1	2056	540	2022	-	-	-	-	-
AP2	1988	-563	1978	230	30	23.64	473.0	522.5
AP3	1910	-561	1890	-	-	-	-	-
A-PILLAR PASSENGER SIDE								
AP1	2035	501	2069	R 3				
Rel. AP1	2043	525	2024	150	20	23.72	544.7	577.4
AP2	1990	555	1979	-	-			
AP3	1911	552	1889	130	30	23.50	248.3	353.7
B-PILLAR DRIVER SIDE								
BP1	-	-	-	-	-	-	-	-
BP2	-	-	-	-	-	-	-	-
BP3	-	-	-	-	-	-	-	-
BP4	-	-	-	-	-	-	-	-
B-PILLAR PASSENGER SIDE								
BP1	-	-	-	-	-	-	-	-
BP2	-	-	-	-	-	-	-	-
BP3	-	-	-	-	-	-	-	-
BP4	-	-	-	-	-	-	-	-
OTHER PILLARS DRIVER SIDE								
OP1	-	-	-	-	-	-	-	-
OP2	-	-	-	-	-	-	-	-
OTHER PILLARS PASSENGER SIDE								
OP1	-	-	-	-	-	-	-	-
OP2	-	-	-	-	-	-	-	-

Note: R 1 - Relocated once (one sphere) R=2 - Relocated twice (two spheres)

Target (mm)				Horizontal Impact angle	Vertical Impact Angle	Velocity (KPH)	FMH-HIC	HIC(d1)
	X	Y	Z					
FRONT HEADER DRIVER SIDE								
FH1	1960	-383	2064	180	50	23.63	646.5	654.1
FH2	1936	-231	2068	-	-	-	-	-
FRONT HEADER PASSENGER SIDE								
FH1	1961	387	2060	-	-	-	-	-
FH2	1947	235	2068	-	-	-	-	-
SIDE RAIL DRIVER SIDE								
SR1	2173	-480	2092	270	25	23.39	311.5	401.4
SR2A	2324	-475	2110	-	-	-	-	-
SR2R	2300	-477	2107	-	-	-	-	-
SR3	-	-	-	-	-	-	-	-
SIDE RAIL PASSENGER SIDE								
SR1	2184	474	2096	-	-	-	-	-
SR2A	2331	478	2106	-	-	-	-	-
SR2R	2308	475	2106	90	31	23.42	416.6	480.7
SR3	-	-	-	-	-	-	-	-
REAR HEADER DRIVER SIDE								
RH1	2599	-349	2112	0	34	23.38	295.5	389.3
REAR HEADER PASSENGER SIDE								
RH1	2605	349	2110	-	-	-	-	-
UPPER ROOF DRIVER SIDE								
UR	2319	-376	2152	270	44	23.80	728.3	715.9
UPPER ROOF PASSENGER SIDE								
UR	2331	375	2150	-	-	-	-	-
REAR PILLAR DRIVER SIDE								
RP1	2602	-488	2090	R-1		-	-	-
Rel. RP1	2596	-468	2101	-	-	-	-	-
RP2	2591	-583	1862	-	-	-	-	-
REAR PILLAR PASSENGER SIDE								
RP1	2601	482	2097	R-1		-	-	-
Rel. RP1	2604	467	2108	52	17	23.42	560.2	589.0
RP2	2592	588	1862	78	1	23.66	698.6	693.4

Note R-1 - Relocated once (one sphere) R-2 - Relocated twice (two spheres)

DATA SHEET 2-3

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style:	2003 Toyota Tacoma Pick-up		
Vehicle Body Color:	Gray	VIN:	5TENL42N63Z157419
Vehicle NHTSA No.:	C35102	Month & Year of Manufacture:	09/02
Engine Data:	4	Cylinders:	-
		CID:	2.4
		Liters:	- cc
Engine Placement:	x	Longitudinal;	or
		-	Lateral
Transmission:	5	Speed;	x
		Manual;	-
		Automatic;	-
		Overdrive	-
Final Drive:	x	Rear Wheel Drive;	-
		Front Wheel Drive;	-
		Four Wheel	-
Odometer Reading	13	km	
Options:	x	A/C;	x
		Power Steering;	x
		Pwr.Brakes;	-
		Pwr. Windows	-
Interior Trim Information :			

1. Grab handles on both driver and passenger A-Pillars
2. Adjustable seat belt anchorages on both driver and passenger Rear Pillars

DATA FROM TIRE PLACARD

Tire Pressure (at capacity);	200	kPa FRONT
	200	kPa REAR
Recommended Tire Size:	P205/75R15	
Tires on Test Vehicle:	P205/75R15	Manufacturer: Firestone
Vehicle Capacity Data:		
Number of Occupants:	3	Front; - Rear; - 3rd Seat; 3 Total
Type of Front Seats:	-	Bucket; x Bench; - Split Bench
Type of Front Seat Back:	x	Fixed; - Adjustable with - Lever or - Knob
Vehicle Capacity Weight (VCW)=	638	kg (A)
No. of Occupants x 58 kg. =	204	kg (B)
Rated Cargo/Luggage Weight (RCLW)	434	kg (A-B) Max. RCLW = 136 kg.

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Left Front	369	kg	Left Rear	286	kg
Right Front	361	kg	Right Rear	266	kg
TOTAL FRONT =	730.0	kg	TOTAL REAR =	552.0	kg
% of Total Weight =	56.9	%	% of Total Weight =	43.1	%
TOTAL WEIGHT	1282.0	kg			

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight	=	<u>1282.0</u>	kg
+ Rated Cargo/Luggage Weight	=	<u>136.0</u>	kg
TEST VEHICLE TARGET WEIGHT:	=	<u>1416.0</u>	kg

WEIGHT OF TEST VEHICLE (FULLY LOADED):

Left Front	-	<u>349</u>	kg	Left Rear	-	<u>367</u>	kg
Right Front		<u>348</u>	kg	Right Rear	-	<u>347</u>	kg
TOTAL FRONT	=	<u>697.0</u>	kg	TOTAL REAR	=	<u>714.0</u>	kg
% of Total Weight	-	<u>49.1</u>	%	% of Total Weight		<u>50.6</u>	%
TOTAL TEST WEIGHT	=	<u>1411.0</u>	kg				
Weight of vehicle secured in test vehicle's cargo area = 136 kg.							

TEST VEHICLE ATTITUDE (all dimensions in millimeters):**AS DELIVERED:**

Left Front	<u>795</u>	Right Front	<u>797</u>	Left Rear	<u>833</u>	Right Rear	<u>836</u>
------------	------------	-------------	------------	-----------	------------	------------	------------

FULLY LOADED:

Left Front	<u>799</u>	Right Front	<u>799</u>	Left Rear	<u>801</u>	Right Rear	<u>801</u>
------------	------------	-------------	------------	-----------	------------	------------	------------

Test Vehicle Wheelbase: 2625 millimeters

TEST VEHICLE PITCH AND ROLL ANGLES:**AS DELIVERED:****PITCH ANGLES**

Left Door Sill	<u>1.4 °</u>	Right Door Sill	<u>1.3 °</u>
----------------	--------------	-----------------	--------------

ROLL ANGLES

Front Bumper	<u>0.2 °</u>	Rear Bumper	<u>0.2 °</u>
--------------	--------------	-------------	--------------

FULLY LOADED:**PITCH ANGLES**

Left Door Sill	<u>0.6 °</u>	Right Door Sill	<u>0.4 °</u>
----------------	--------------	-----------------	--------------

ROLL ANGLES

Front Bumper	<u>0.1 °</u>	Rear Bumper	<u>0.1 °</u>
--------------	--------------	-------------	--------------

AS TESTED:**PITCH ANGLES**

Left Door Sill	<u>1.0 °</u>	Right Door Sill	<u>0.9 °</u>
----------------	--------------	-----------------	--------------

ROLL ANGLES

Front Bumper	<u>0.1 °</u>	Rear Bumper	<u>0.1 °</u>
--------------	--------------	-------------	--------------

DATA SHEET 2-4
TARGET MEASUREMENT REFERENCE SHEET

Year/Make/Model/Body Style: 2003 Toyota Tacoma Pick-up
 Vehicle Body Color: Gray VIN: 5TEENL42N63Z157419
 Vehicle NHTSA No.: C35102 Month & Year of Manufacture: 09/02

Measurements	Description	Left Side	Right Side
M	Seat fore / Aft travel (Front seats)	164	164
T° _{CG-F1 (Left seat)}	Horizontal angle {CG-F1 (Left seat) to (Right A-pillar)}	115	-
A1° _{CG-F1 (Left seat)}	360° - T°	245	-
W° _{CG-F2 (Left seat)}	Horizontal angle {CG-F2 (Left seat) to (Left A-pillar)}	200	-
A2° _{CG-F2 (Left seat)}	A2° = W°	200	-
U° _{CG-F1 (Left seat)}	Horizontal angle {CG-F1 (Left seat) to (Left B-pillar)}	-	-
B1° _{CG-F1 (Left seat)}	B1° = U°	-	-
V° _{CG-F2 (Left seat)}	Horizontal angle {CG-F2 (Left seat) to (Right B-pillar)}	-	-
B2° _{CG-F2 (Left seat)}	B2° = V°	-	-
W° _{CG-F2 (Right seat)}	Horizontal angle {CG-F2 (Right seat) to (Right A-pillar)}	-	162
A1° _{CG-F2 (Right seat)}	A1° (Right) = W° (Right)	-	162
T° _{CG-F1 (Right seat)}	Horizontal angle {CG-F1 (Right seat) to (Left A-pillar)}	-	247
A2° _{CG-F1 (Right seat)}	360° - T° (Right)	-	113
V° _{CG-F2 (Right seat)}	Horizontal angle {CG-F2 (Right seat) to (Right B-pillar)}	-	-
B1° _{CG-F2 (Right seat)}	B1° (Right) = V° (Right)	-	-
U° _{CG-F2 (Right seat)}	Horizontal angle {CG-F2 (Right seat) to (Right B-pillar)}	-	-
B2° _{CG-F2 (Right seat)}	B2° (Right) = U° (Right)	-	-
J	A-pillar {(Plane 3) - (Plane 5)}	350	356
J/2	J : 2	175	178
D1	Upper Roof {(Plane A) - (Plane B)}	785	
D1/2	D1 ÷ 2	391.5	
D2	Upper Roof {(Plane C) - (Plane D)}	1165	
D2/2	D2 : 2	585	
.35D1	.35 x D1	274.1	
.35D2	.35 x D2	408.1	
N	B-pillar {(BPR) - (lowest point on the daylight opening forward of B-pillar)}	-	-
N/2	B-pillar {(BP3) - (lowest point on the daylight opening forward of B-pillar)}	-	-

Measurement	Description	Left Side	Right Side
N/4	B-pillar {(BP3) - (lowest point on the daylight opening forward of B-pillar)}	-	-
Q	Other-pillar {(OPR) - (lowest point on the daylight opening forward of Q-pillar)}	-	-
Q/2	Other-pillar {(OP2) - (lowest point on the daylight opening forward of Q-pillar)}	-	-
D	{(Corner of roof area, point 7) - (roof area center, point M)}	496	493
3D/7	$(3 \times D) \div 7$	212.6	211.3
MM	Widest door opening of slider door		-
M	$MM \div 2$	-	-

DATA SHEET 2-5

APPROACH ANGLE LIMITS

Left Side					Right Side				
Target Code	Horizontal Angles (deg.)		Vertical Angles (deg.)		Target Code	Horizontal Angles (deg.)		Vertical Angles (deg.)	
	Minimum	Maximum	Minimum	Maximum		Minimum	Maximum	Minimum	Maximum
AP1	200	245	-5	25	AP1	113	162	-5	25
AP2	200	245	-5	30	AP2	113	162	-5	30
AP3	200	245	-5	35	AP3	113	162	-5	30
BP1	-	-	-	-	BP1	-	-	-	-
BP2	ANY		-	-	BP2	ANY		-	-
BP3	-	-	-	-	BP3	-	-	-	-
BP4	-	-	-	-	BP4	-	-	-	-
OP1	270		-	-	OP1	90		-	-
OP2	270		-	-	OP2	90		-	-
RP1	270	345	-10	17	RP1	15	90	10	17
RP2	ANY		0	1	RP2	ANY		0	1
PH1	180		0	50	PH1	180		0	50
PH2	180		0	30	PH2	180		0	50
RH1	360		0	34	RH1	0		0	34
SR1	270		0	25	SR1	90		0	25
SR2A	270		0	25	SR2A	90		0	25
SR2R	270		0	31	SR2R	90		0	31
SR3	270		-	-	SR3	90		-	-
SD	270		-	-	SD	90		-	-
URSR	ANY		0	44	URSR	ANY		0	44

RP2 is a seat belt anchorage target.

DATA SHEET 2-6

POST-TEST VISUAL INSPECTION

Year/Make/Model/Body Style: 2003 Toyota Tacoma Pick-up
Vehicle Body Color: Gray VIN: 5TENL42N63Z157419
Vehicle NHTSA No.: C35102 Month & Year of Manufacture 09/02

REMARKS:

1. Grab handle bent during AP3 impact
2. Broke rear window during RII impact

DATA SHEET 2-7

TARGET IMPACT LOCATION ON FMH SUMMARY

Year/Make/Model/Body Style: 2003 Toyota Tacoma Pick-up
 Vehicle Body Color: Gray VIN: 5TEN142N63Z157419
 Vehicle NHTSA No.: C35102 Month & Year of Manufacture: 09/02



→ RIGHT SIDE OF FACE

TARGET	Distance Above Pt. O (mm)	Distance Over From Pt. O (mm)
AP3	15	7 to the left
AP1	17	15 to the right
RP2	6	22 to the right
RP1	55	32 to the right
SR2R	20	5 to the left
AP2	42	8 to the right
PH1	44	0
SR1	35	8 to the right
URSR	48	10 to the right
RH1	22	3 to the left

SECTION 3
SUMMARY OF TEST RESULTS AND DATA PLOTS

TEST SUMMARY SHEET FOR FMVSS 201/C TESTING

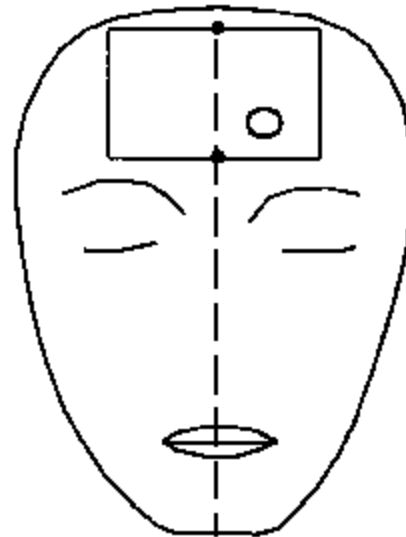
Year/Make/Model/Body Style: 2003 Toyota Tacoma Pick-up
 Vehicle Body Color: Gray VIN: 5TENL42N63Z157419
 Vehicle NH/SA No.: C35102 Month & Year of Manufacture: 09/02

Test Number: 1 Test Date: December 19, 2002
 Target Location: Passenger Side A-pillar Target Code: AP3
 Horizontal Impact Angle: 130° Vertical Impact Angle: 30°
 Ambient Temperature: 22 °C Time of Impact: 10:20
 Headform Number: 1255

Impact Point:

Description:

Description: From lower midpoint				
On centerline	15	mm up		
On centerline	7	-	mm right	x mm left



Free Motion HIC: 248.3 HIC(d): 353.7
 Impact Velocity (kph): 23.50 HIC(T) 7.9 msec HIC(T)2 16.5 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma C35102 - AP3

FMH Headform 1255

Location: AP3

Test Date: December 19, 2002

Work File: fmh

-----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 353.7

Lab Humidity: 20 %

HIC (36ms): 248.3

Velocity at Impact: 23.50 KPH

t1: 7.9 msec

t2: 16.5 msec

Free Flight Distance: 213.01 mm

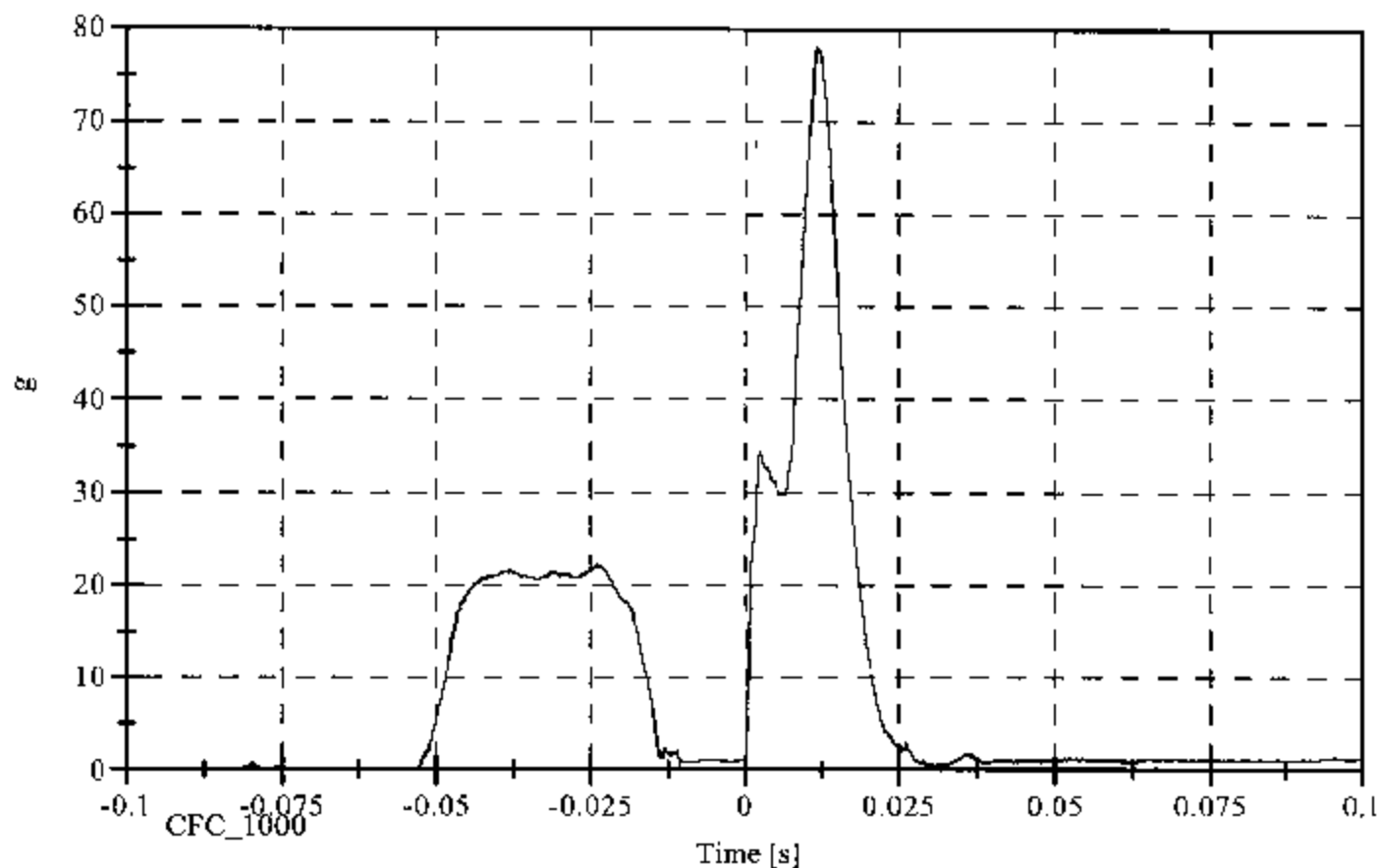
Duration: 8.5 msec

Average Acceleration: 8.2 g

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma
Headform Resultant

Max: 77.9 [g] at 0.012 [s]

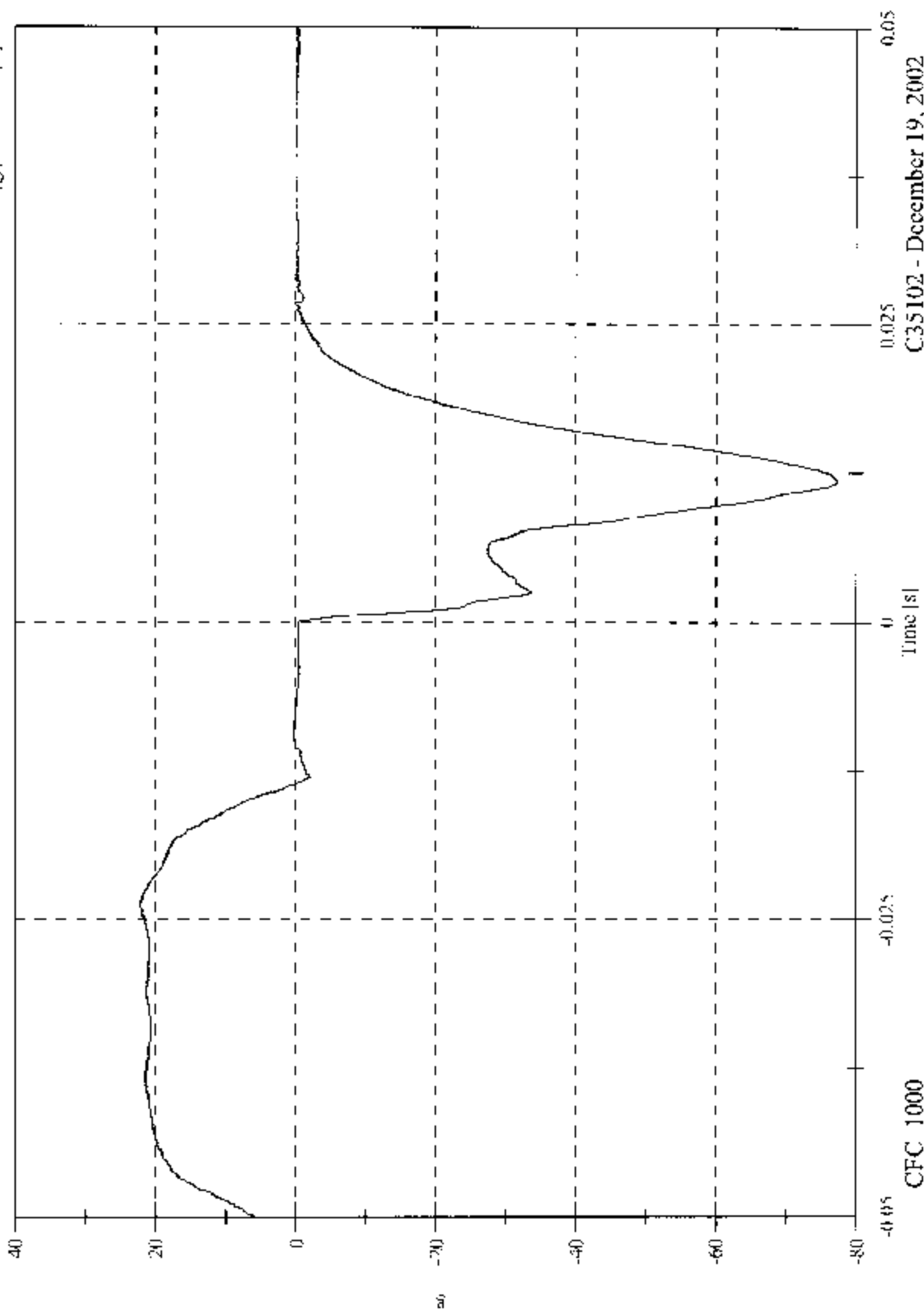
Min: 0.0 [g] at -0.057 [s]



FMVSS 201C IMPACT TEST - 2003 Toyota Tacoma

Headform X Acceleration

Max: 22.1 [g] at -0.024 [s]
Min: -77.3 [g] at 0.012 [s]



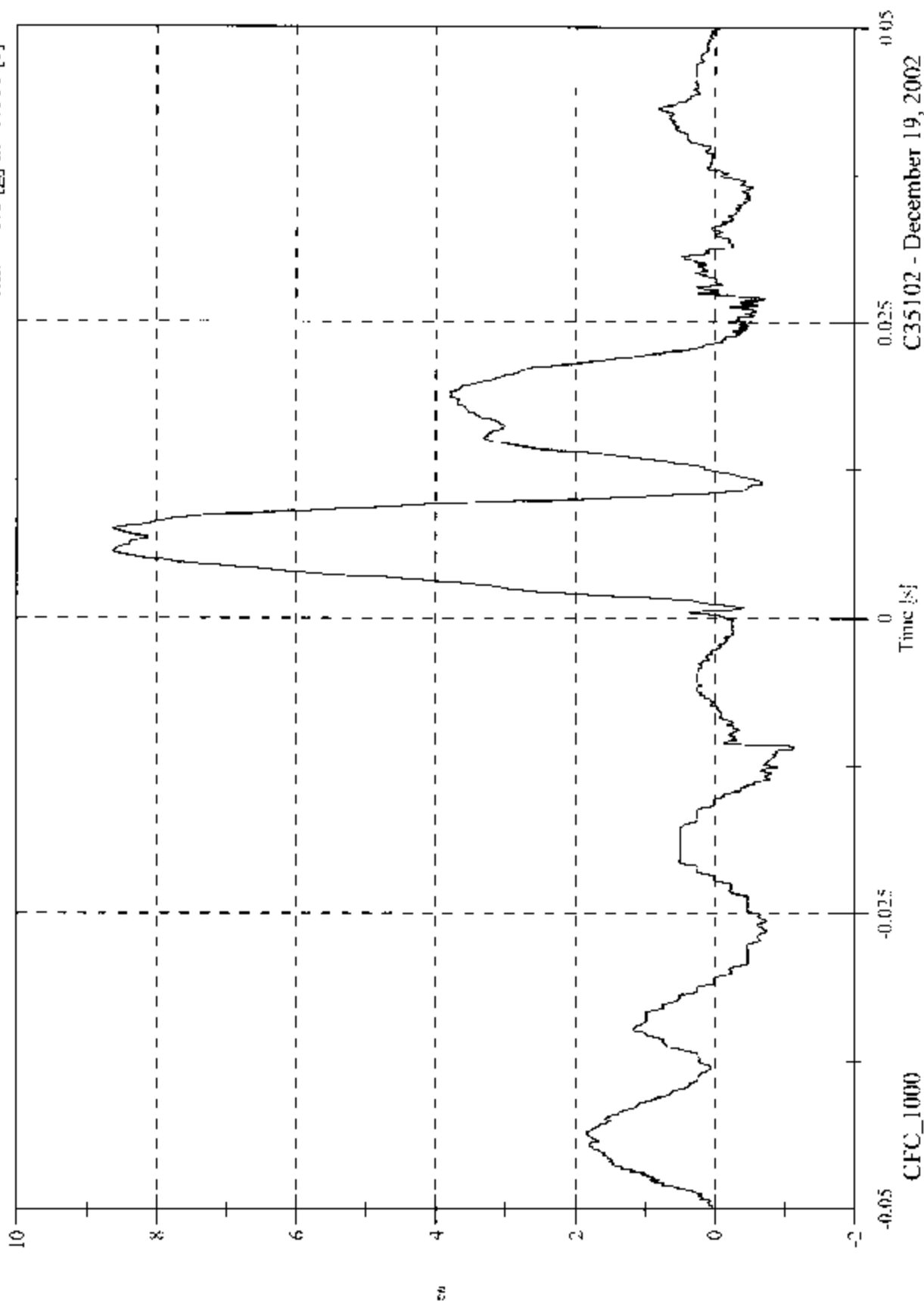
CFC_1000

FMV/SS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Y Acceleration

Max: 8.6 [g] at 0.008 [s]

Min: -1.1 [g] at -0.011 [s]



CFC_1000

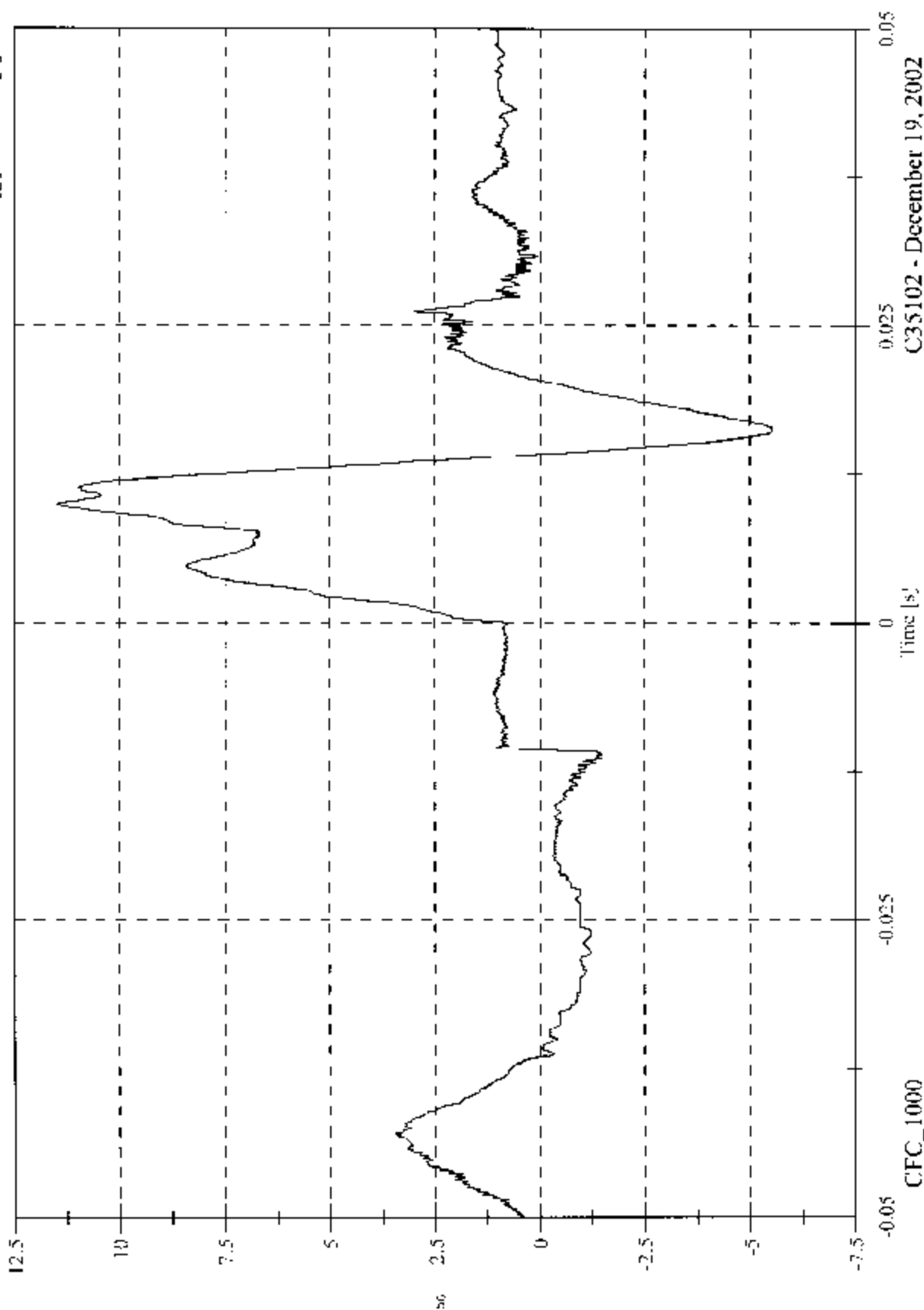
Time [s]

C35102 - December 19, 2002

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Z Acceleration

Max: 11.5 [g] at 0.010 [s]
Min: -5.5 [g] at 0.016 [s]

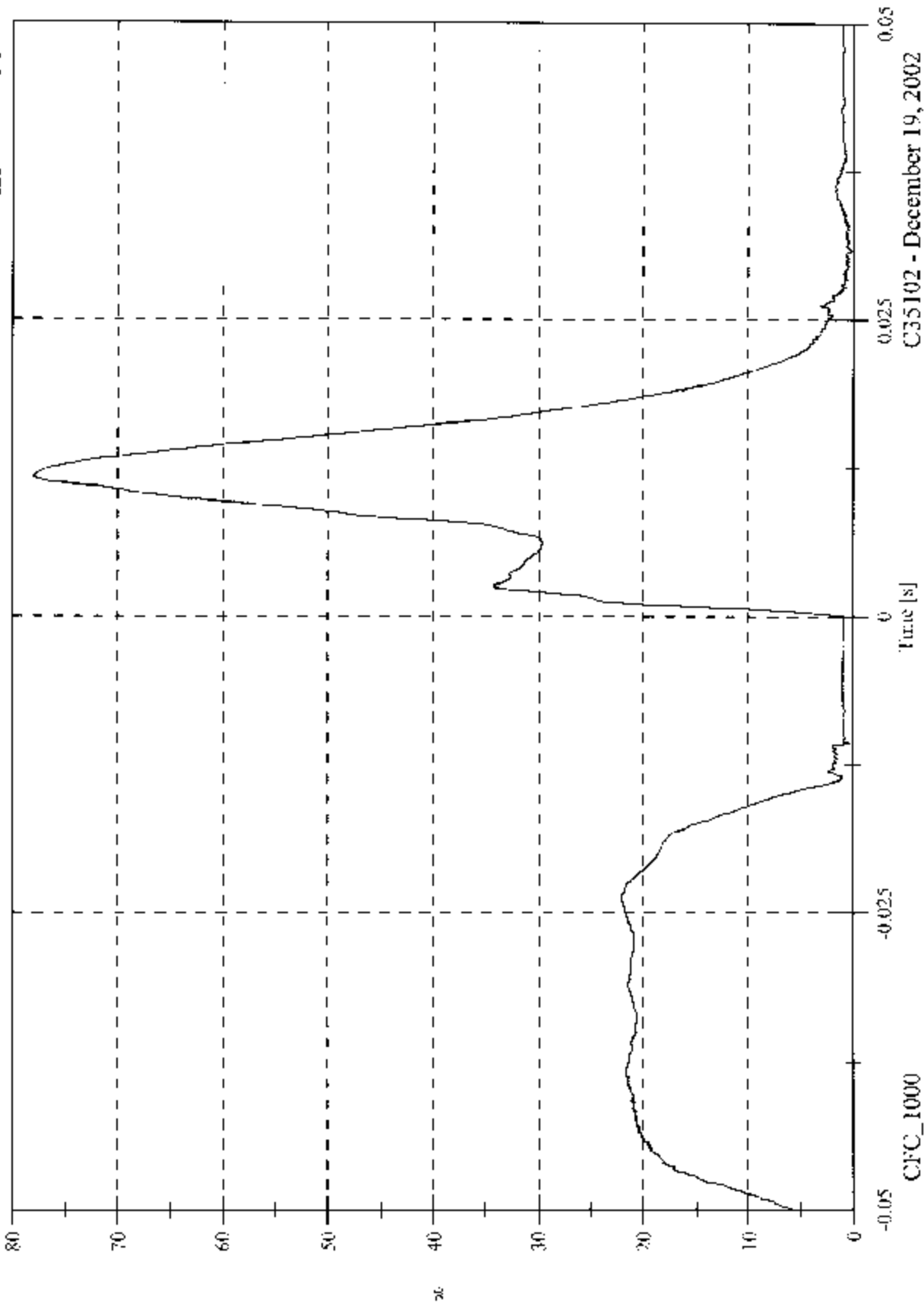


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FMVSS 201U IMPACT TEST 2003 Toyota Tacoma

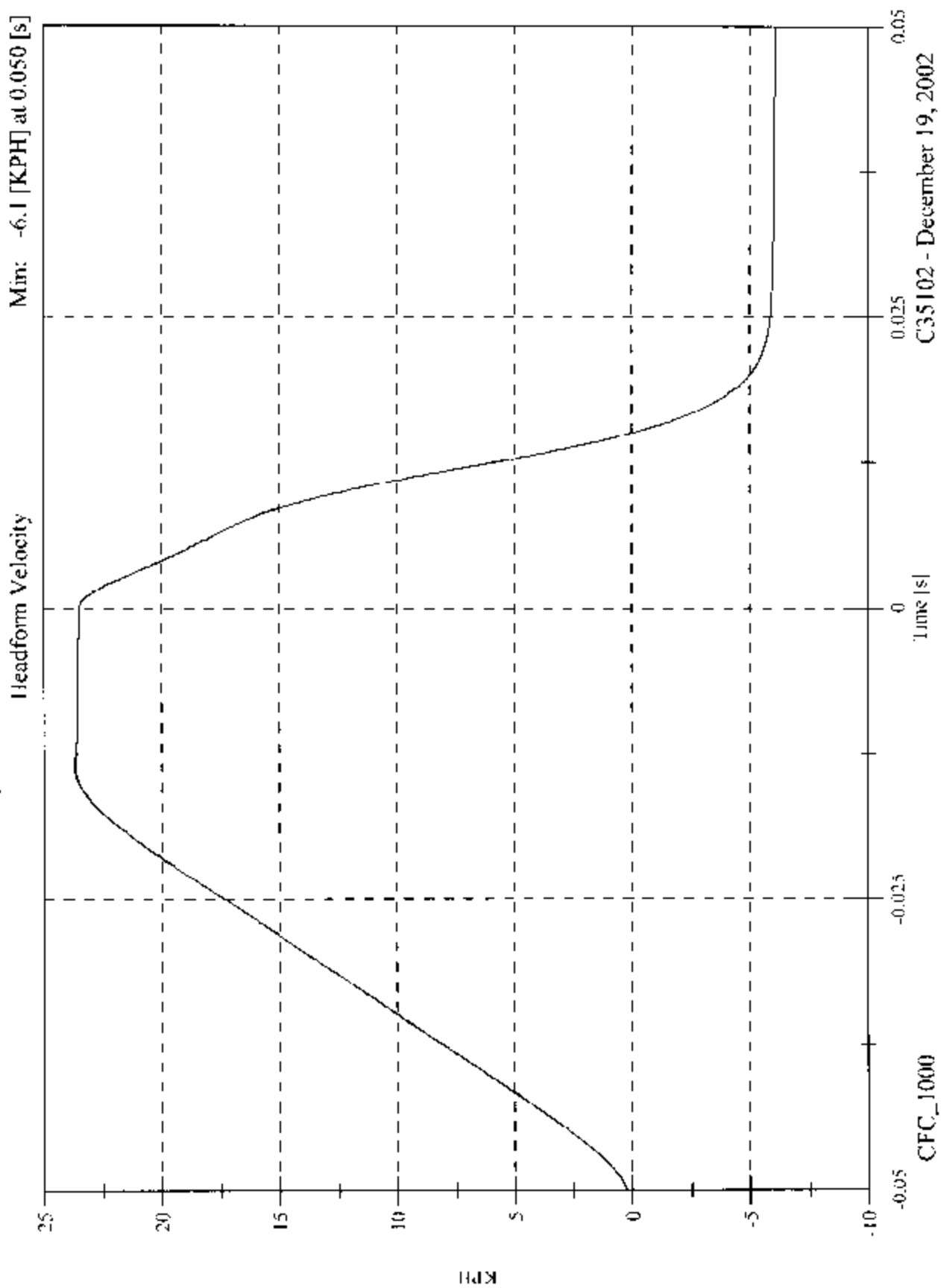
Headform Resultant

Max: 77.9 [g] at 0.012 [s]
Min: 0.2 [g] at 0.031 [s]



FMVSS 2010 IMPACT TEST - 2003 Toyota Tacoma

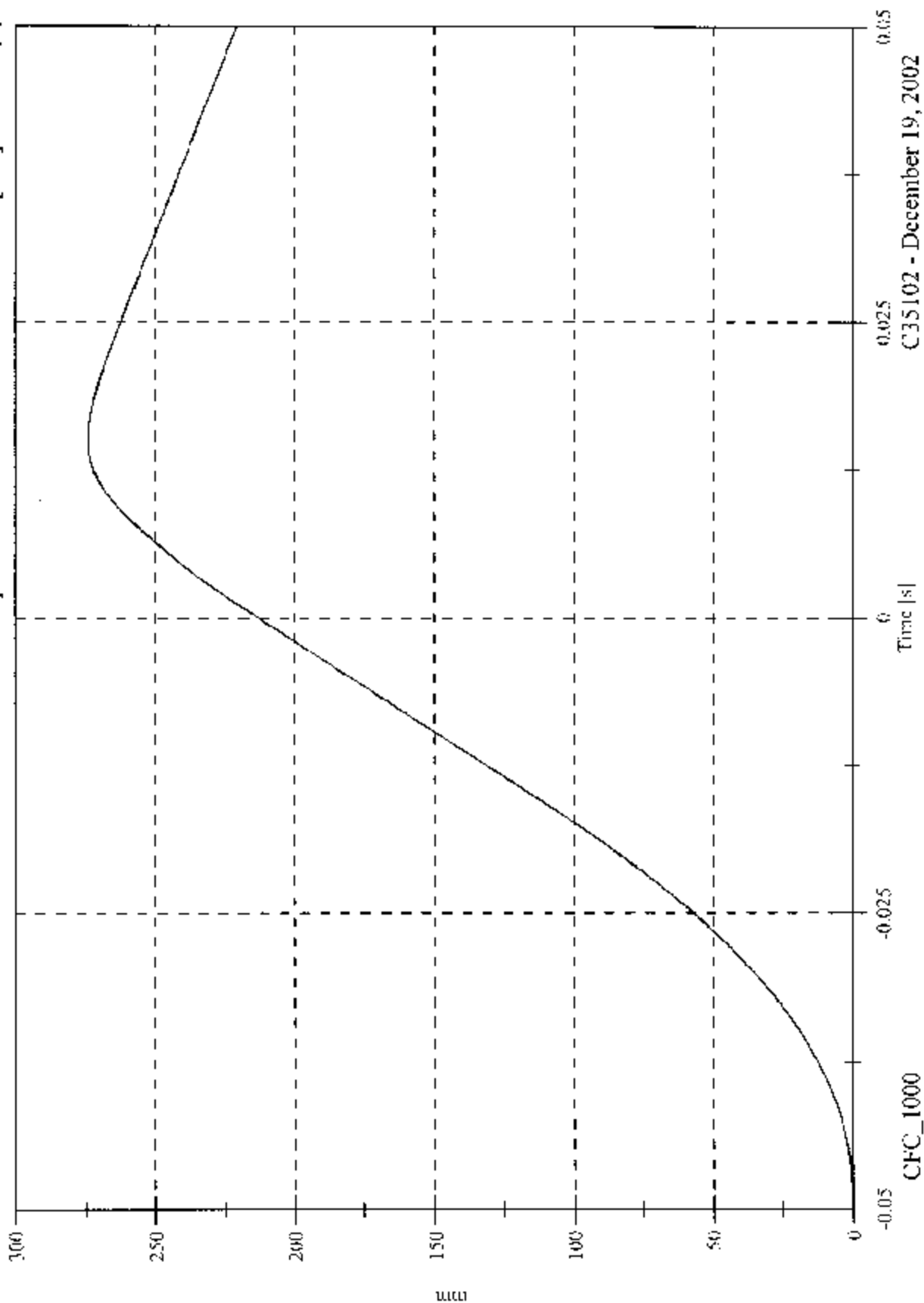
Max: 23.7 [KPH] at -0.014 [s]
 Min: -6.1 [KPH] at 0.050 [s]



FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Max: 274.1 [mm] at 0.015 [s]
Min: 0.1 [mm] at -0.050 [s]

Headform Displacement



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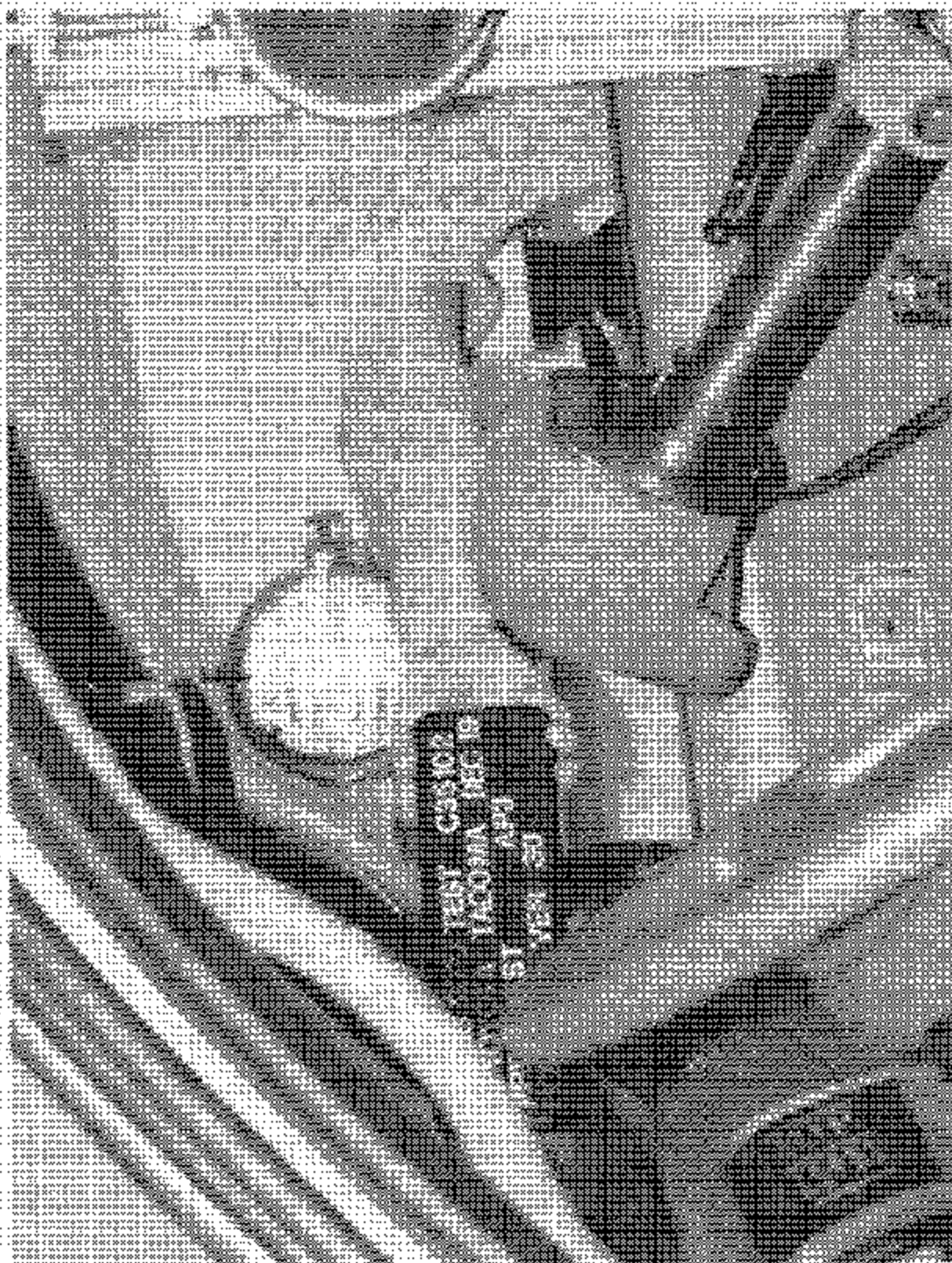


Figure 1. 100% View

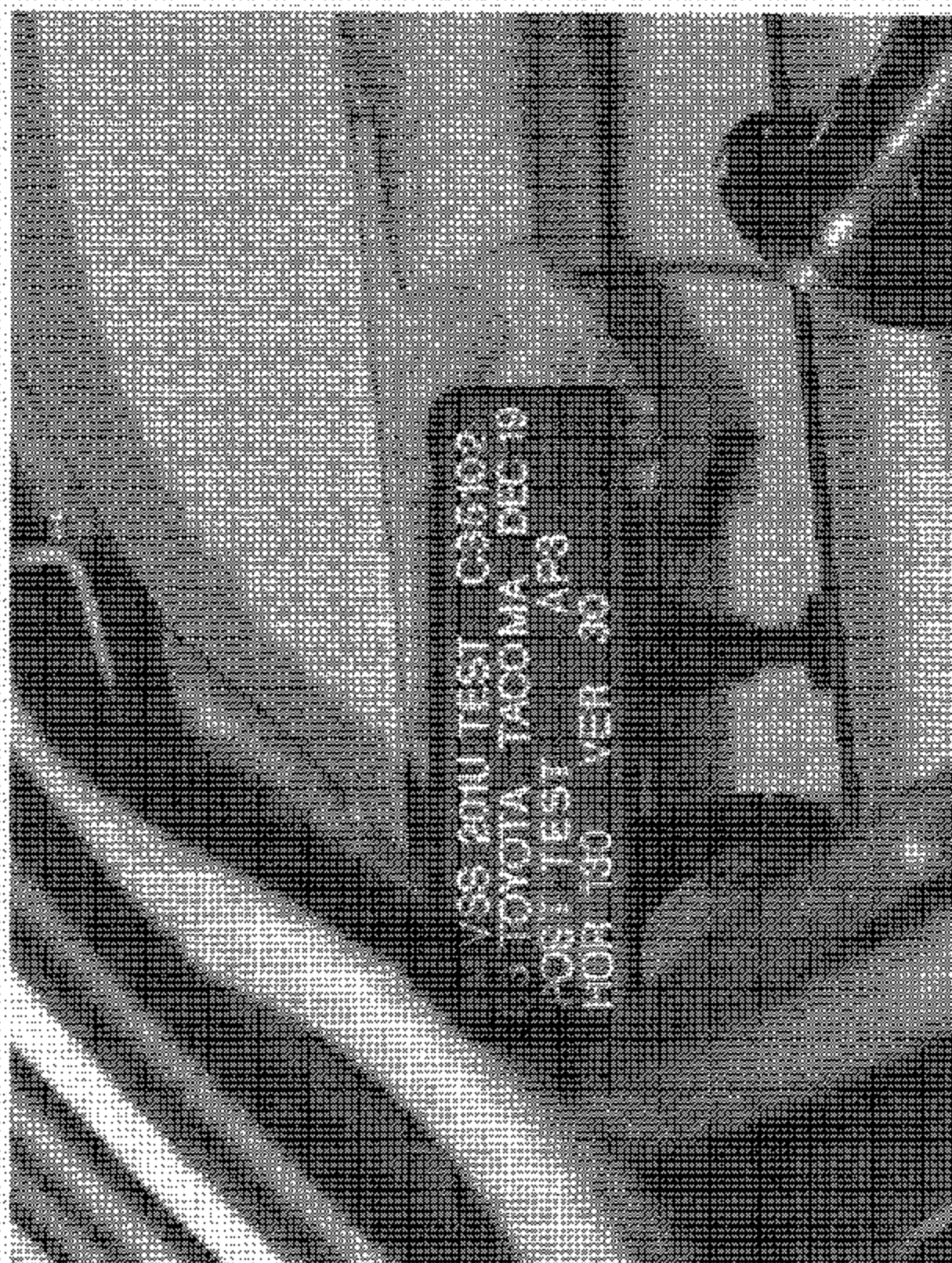


Figure 1: POST TEST AG

FMVSS 201U TEST C35102
03 TOYOTA TACOMA DEC 19
POST TEST APR
MOR 130 VER 30

Figure 1. APC 811110-01

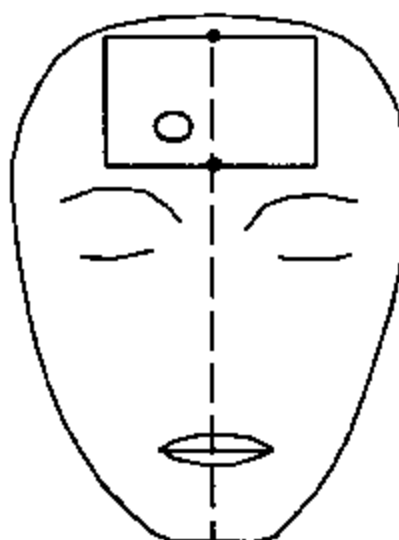
Year/Make/Model/Body Style: 2003 Toyota Tacoma Pick-up
 Vehicle Body Color: Gray VIN: 5T1E142N637157419
 Vehicle NHISA No.: C35102 Month & Year of Manufacture: 09/02

Test Number: 2 Test Date: December 19, 2002
 Target Location: Passenger Side A-Pillar Target Code: AP1
 Horizontal Impact Angle: 150 ° Vertical Impact Angle: 20 °
 Ambient Temperature: 21.5 °C Time of Impact: 11:12
 Headform Number: 0062

Impact Point:

Description:

Description:	From lower midpoint				
On centerline	17	mm up			
On centerline	15	x	mm right	-	mm left



Free Motion HIC: 544.7 HIC(6): 577.4
 Impact Velocity (kph): 23.72 HIC(1): 2.1 msec HIC(12): 9.5 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma C35102 - AP1

FMH Headform 0062

Location: AP1

Test Date: December 19, 2002

Work File: fmh

-----TEST RESULTS-----

Lab Temperature: 21.5 C

HICd: 577.4

Lab Humidity: 20 %

HIC (36ms): 544.7

Velocity at Impact: 23.72 KPH

t1: 2.1 msec

t2: 9.5 msec

Free Flight Distance: 214.10 mm

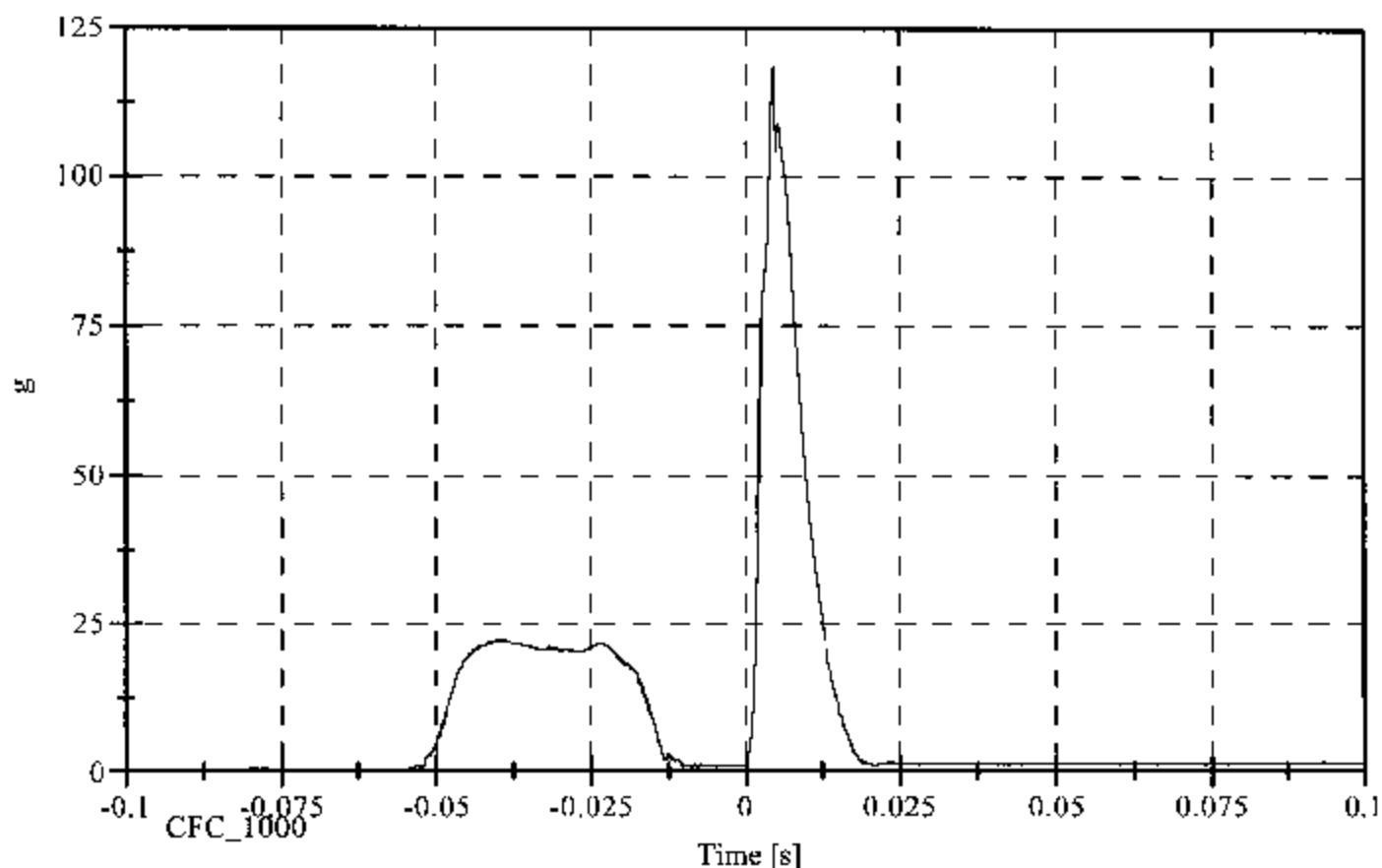
Duration: 7.3 msec

Average Acceleration: 8.4 g

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma
Headform Resultant

Max: 118.4 [g] at 0.004 [s]

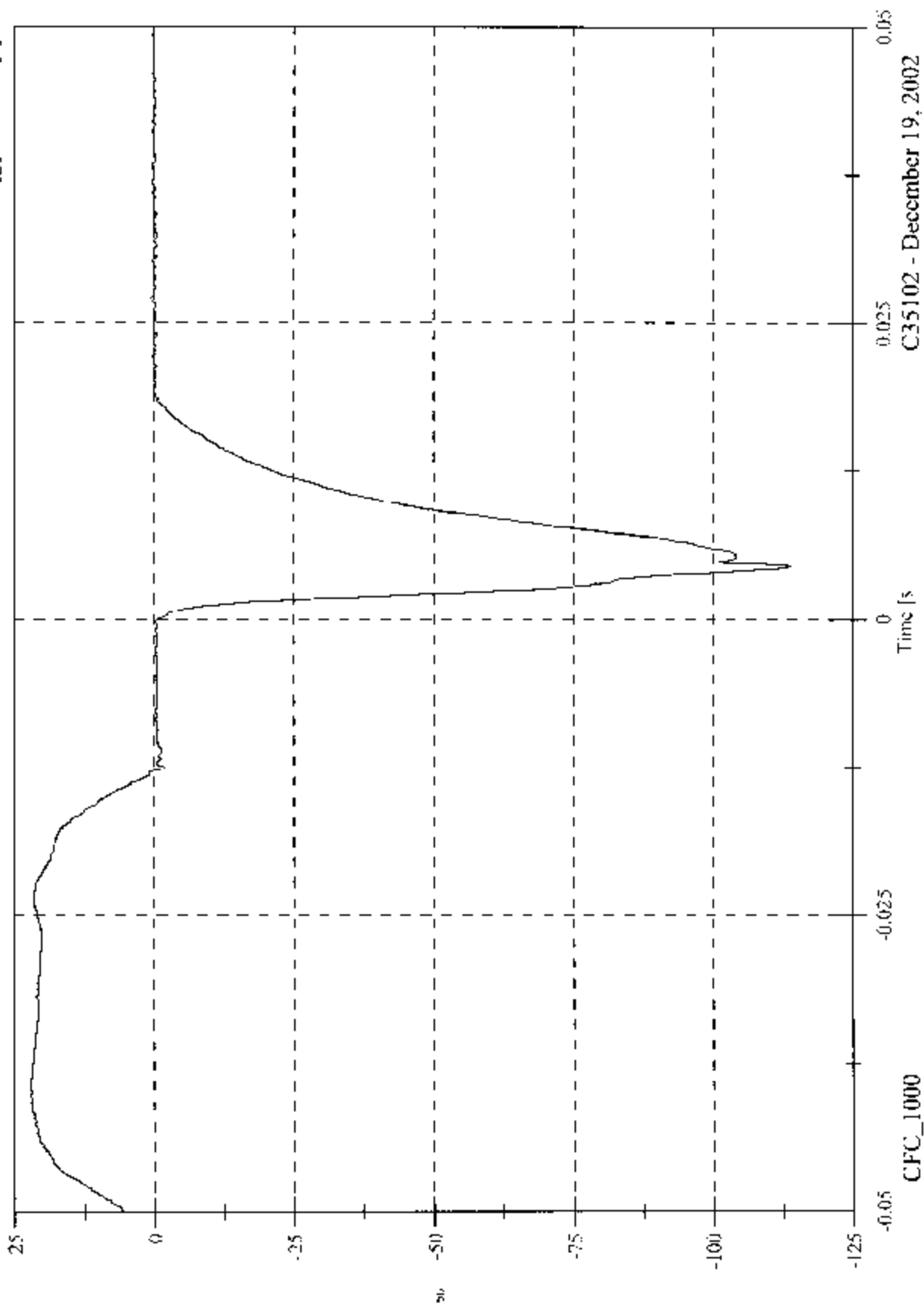
Min: 0.0 [g] at -0.094 [s]



FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform X Acceleration

Max: 22.0 [g] at -0.039 [s]
Min: -113.9 [g] at 0.004 [s]

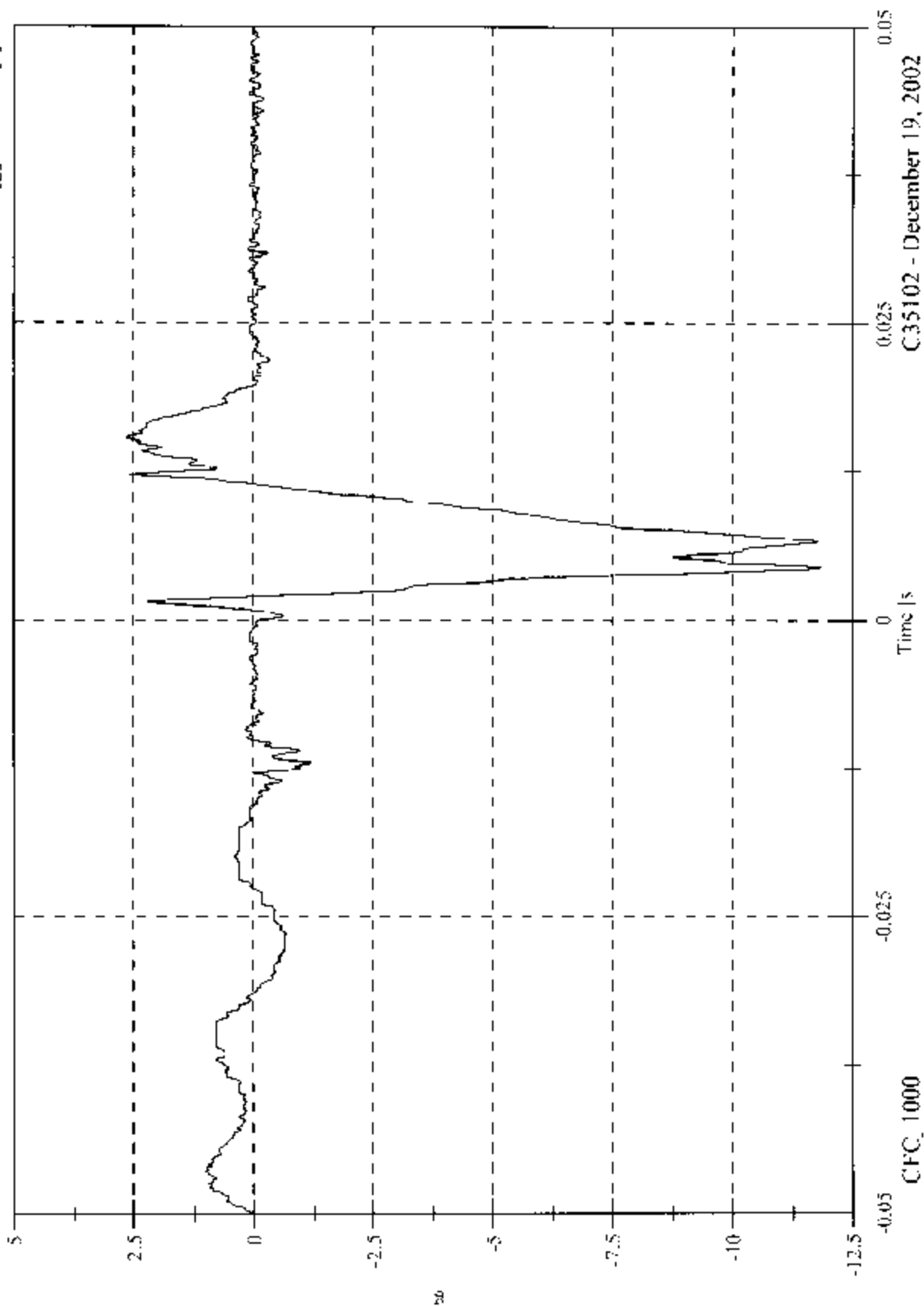


CPC_1000

FMVSS 201C IMPACT TEST - 2003 Toyota Tacoma

Headform Y Acceleration

Max: 2.7 [g] at 0.015 [s]
Min: -11.8 [g] at 0.004 [s]

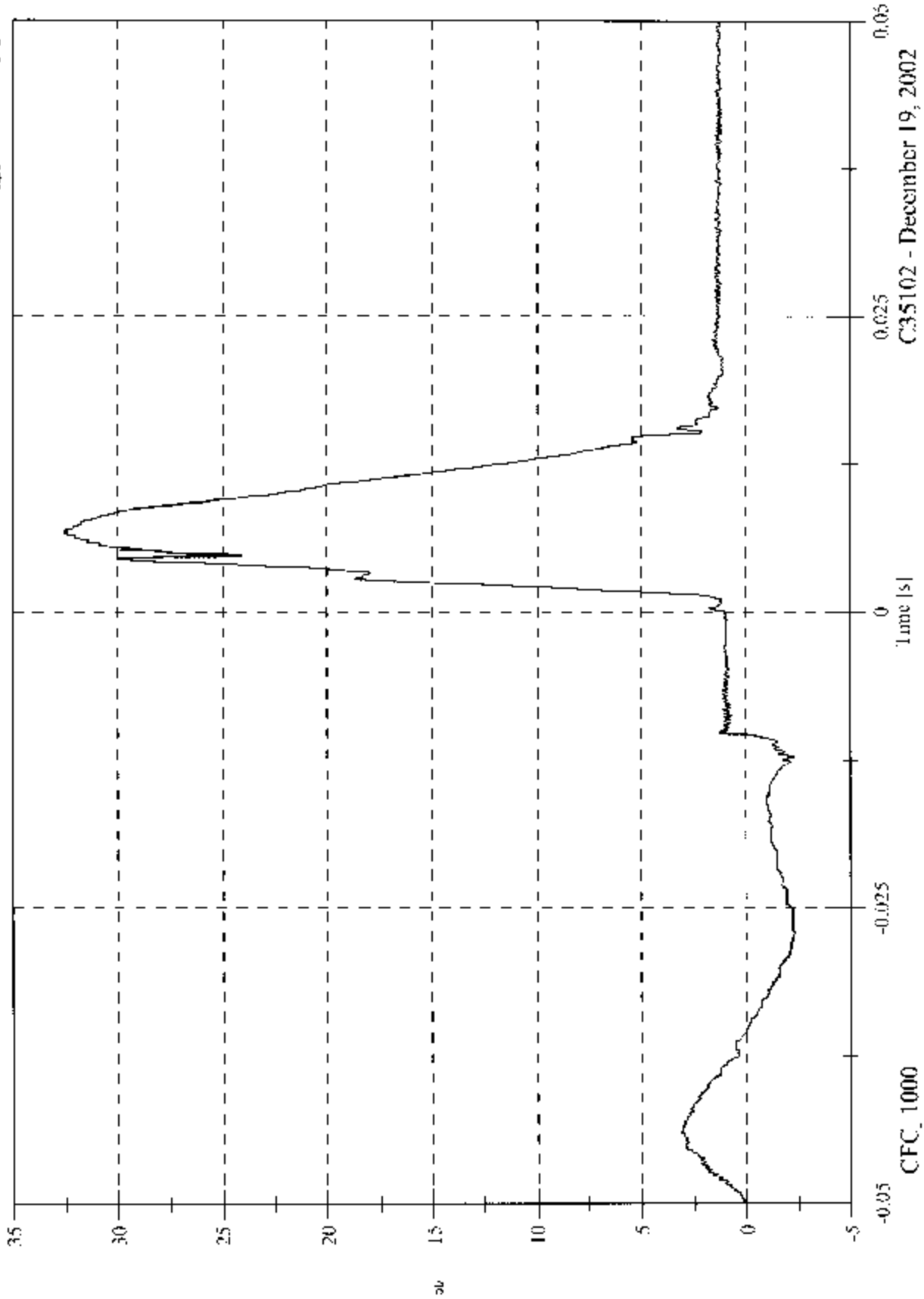


FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Z Acceleration

Max: 32.6 [g] at 0.007 [s]

Min: -2.3 [g] at -0.027 [s]

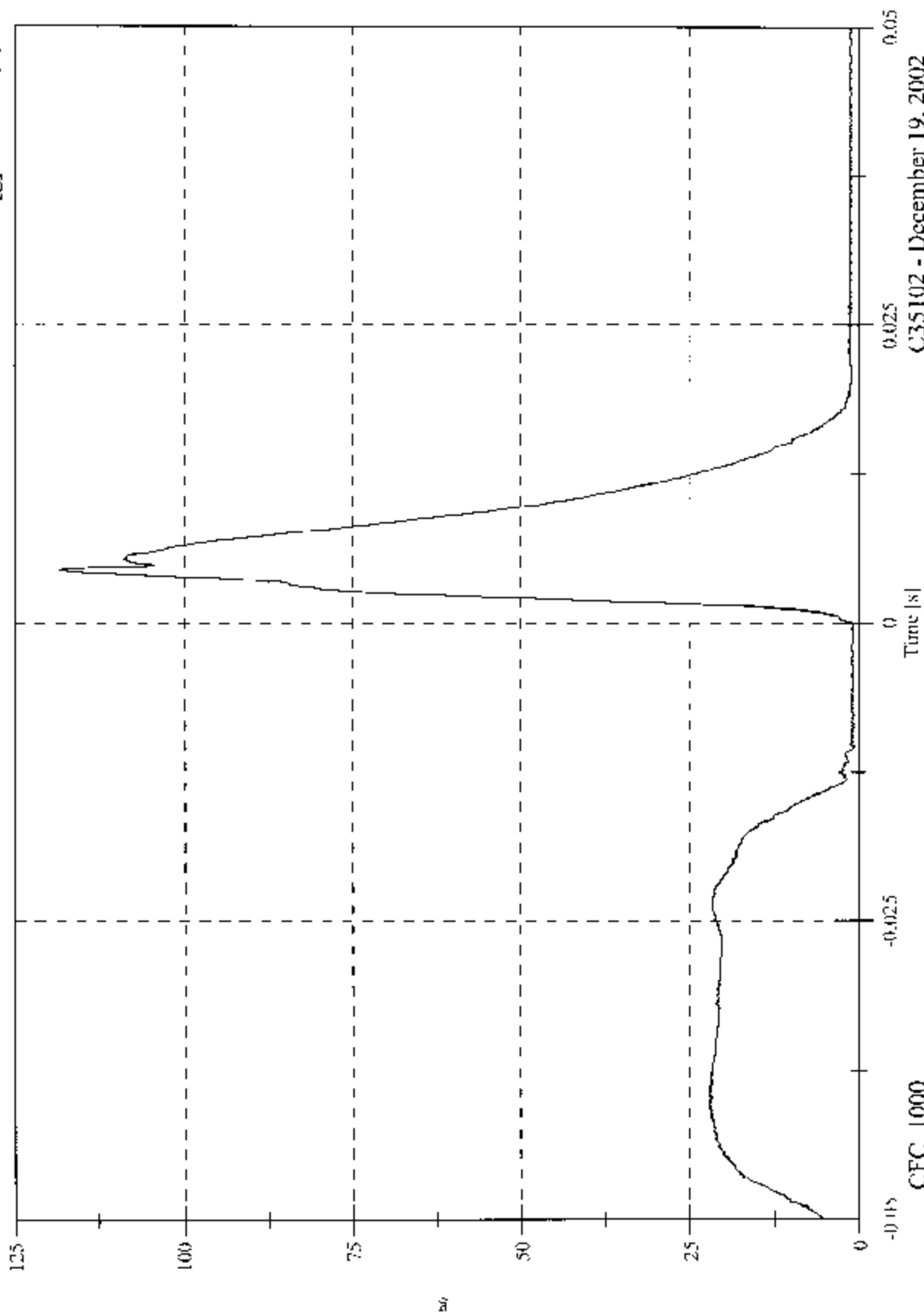


C35102 - December 19, 2002

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Resultant

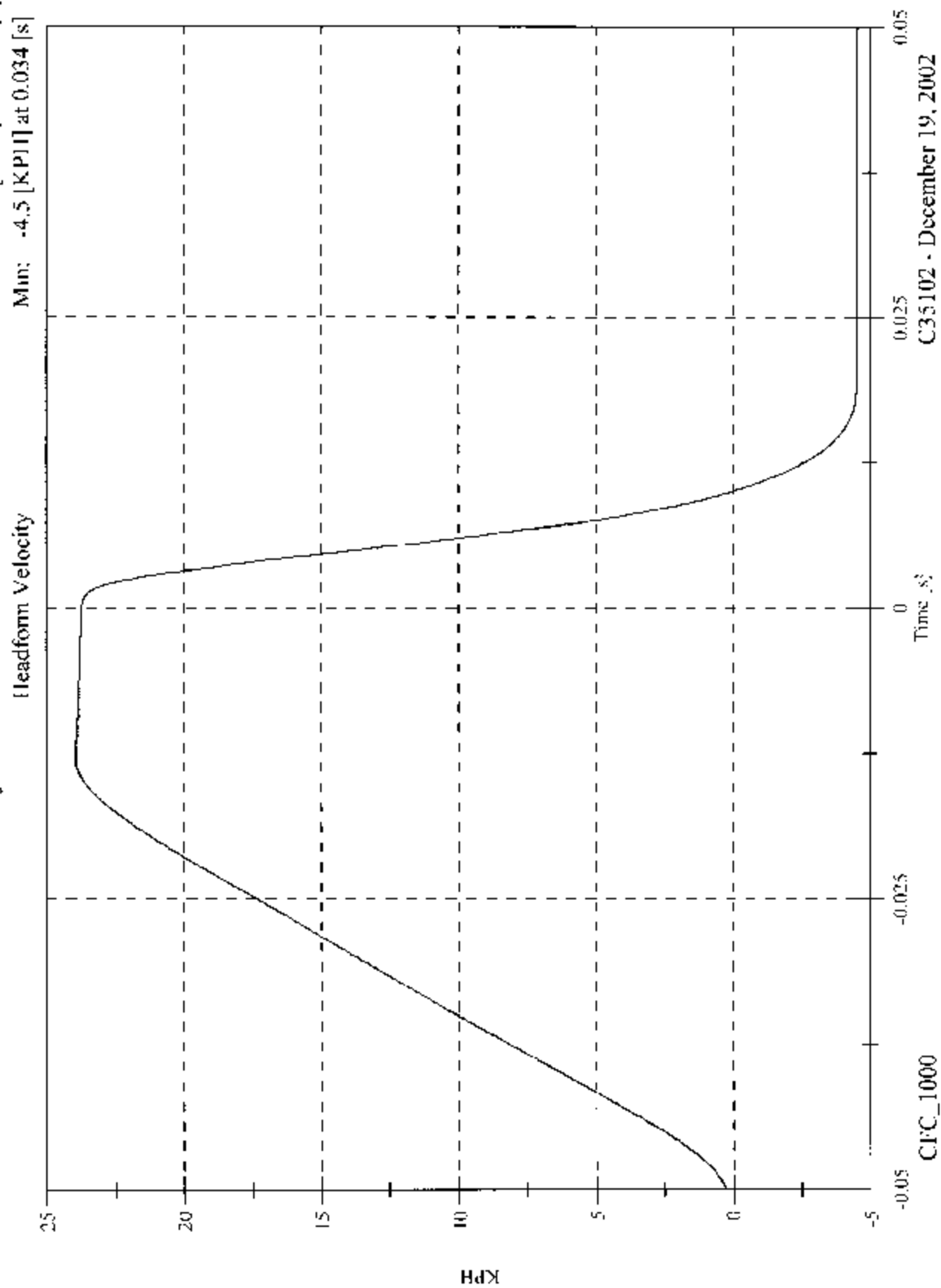
Max: 118.4 [g] at 0.004 [s]
Min: 0.8 [g] at -0.010 [s]



C35102 - December 19, 2002

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

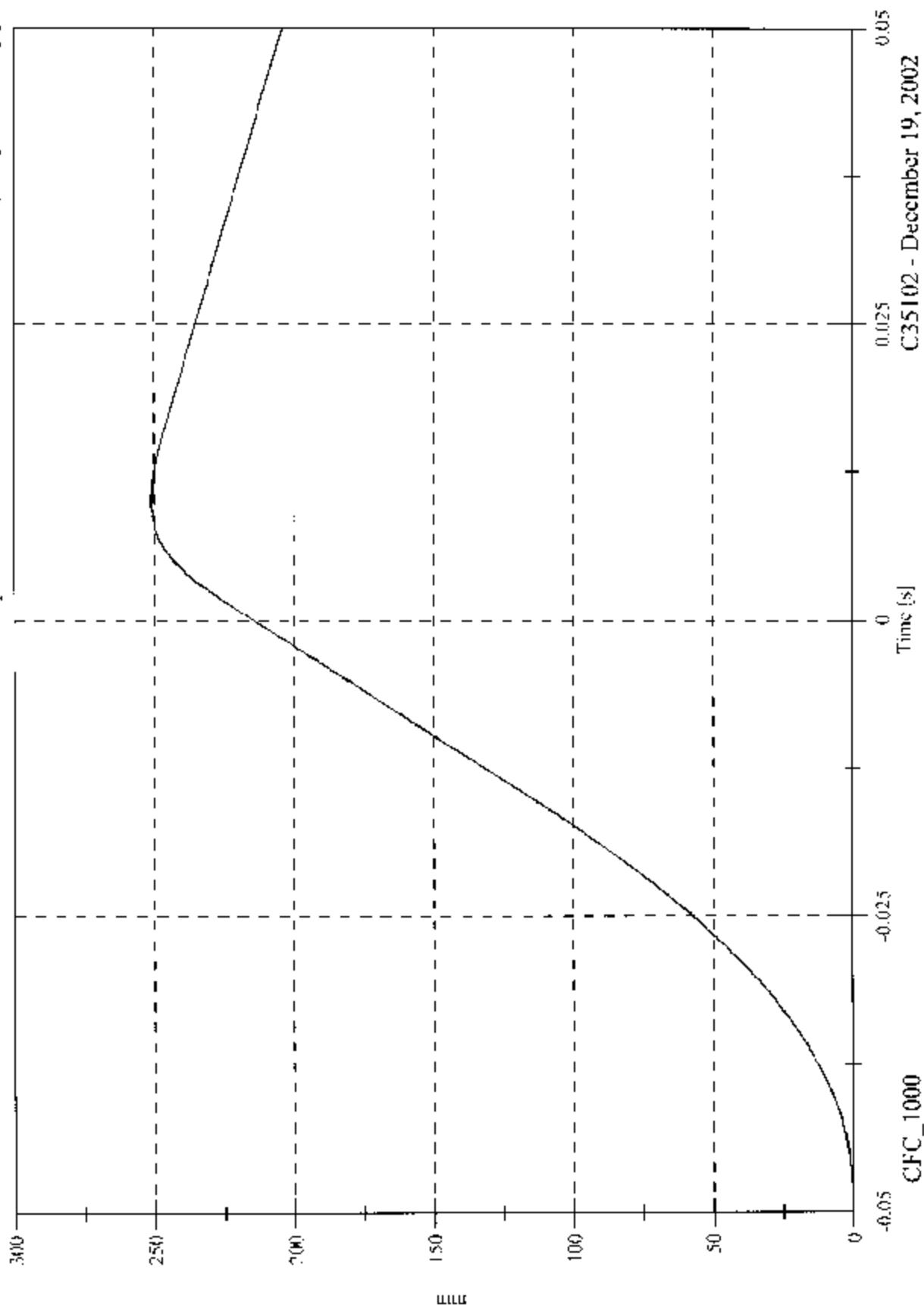
Max: 24.0 [KPII] at -0.013 [s]
 Min: -4.5 [KPII] at 0.034 [s]



FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Displacement

Max: 250.9 [mm] at 0.010 [s]
Min: 0.0 [mm] at -0.050 [s]



CJFC_1000

-0.025

0

0.025

0.05

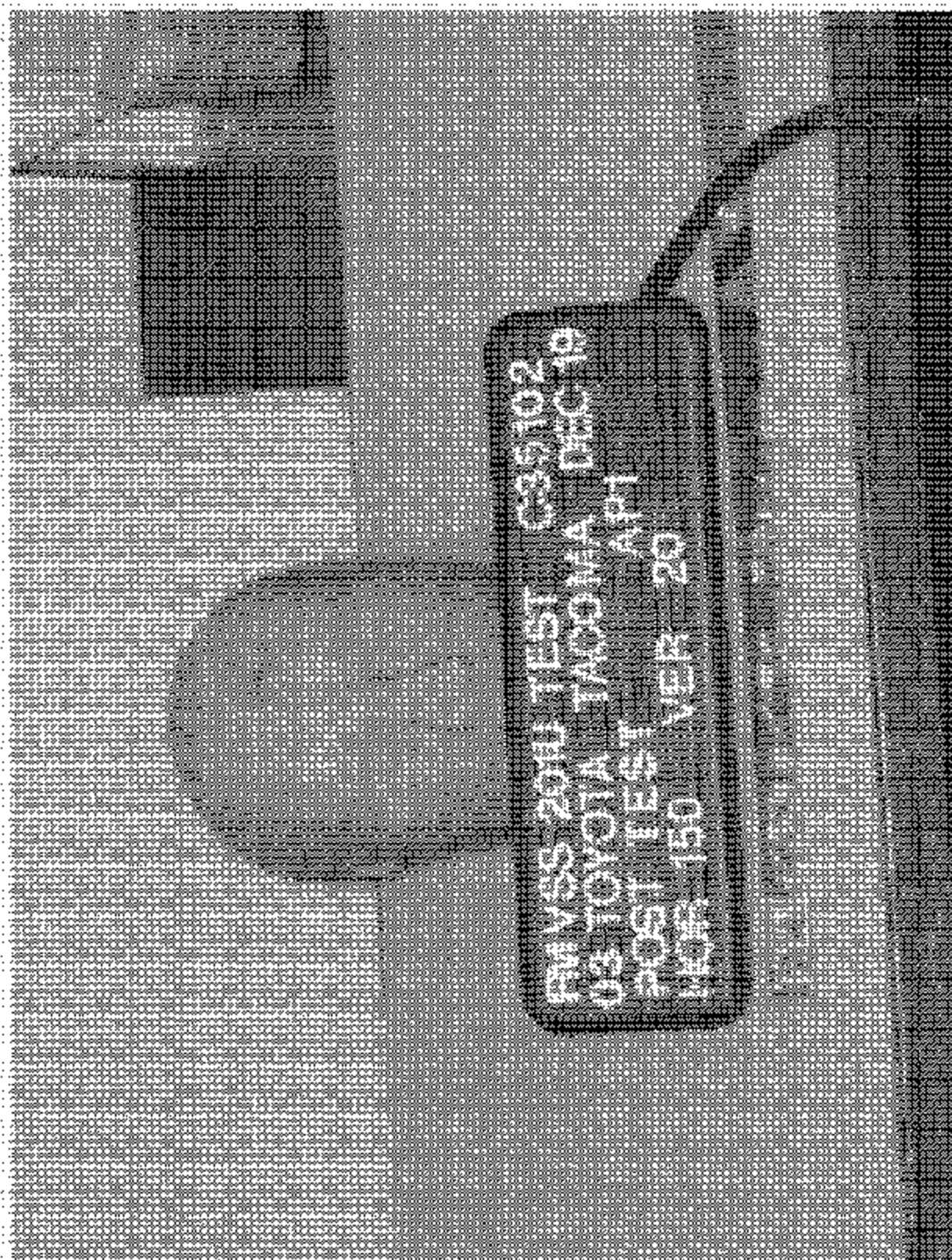
C35102 - December 19, 2002



Figure 1. PHL 1451-02



FMVSS 2011 TEST C85102



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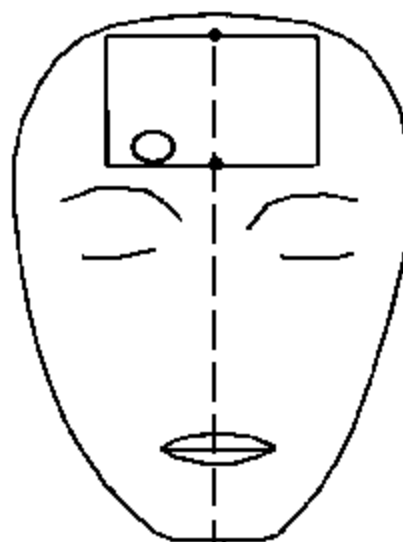
Year/Make/Model/Body Style: 2003 Toyota Tacoma Pick-up
 Vehicle Body Color: Gray VIN: 5TENL42N63Z157419
 Vehicle NHTSA No.: C35102 Month & Year of Manufacture: 09/02

Test Number: 3 Test Date: December 19, 2002
 Target Location: Passenger Side Rear Pillar Target Code: RP2
 Horizontal Impact Angle: 78 Vertical Impact Angle: 1
 Ambient Temperature: 21.5 °C Time of Impact: 11:58
 Headform Number: 0642

Impact Point:

Description:

Description:	From lower midpoint				
On centerline	6	mm up			
On centerline	23	x	mm right	-	mm left



Free Motion HIC: 698.6 HIC(d): 693.4
 Impact Velocity (kph): 23.66 HICT1: 4.0 msec HICT2: 11.3 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma C35102 - RP2

FMH Headform 0642

Location: RP2

Test Date: December 19, 2002

Work File: fmh

-----TEST RESULTS-----

Lab Temperature: 21.5 C

HICd: 693.4

Lab Humidity: 20 %

HIC (36ms): 698.6

Velocity at Impact: 23.66 KPH

t1: 4.0 msec

t2: 11.3 msec

Free Flight Distance: 213.69 mm

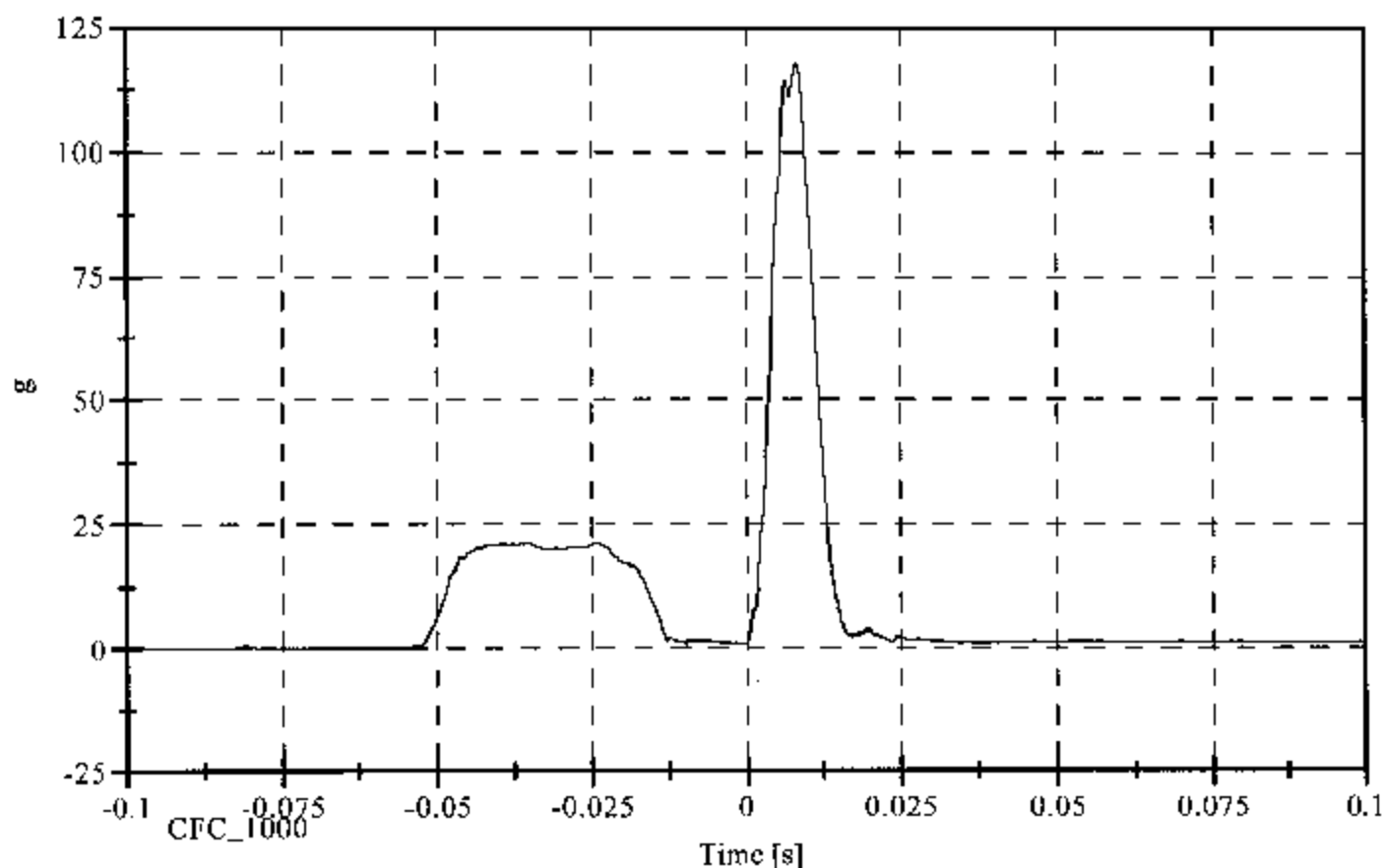
Duration: 7.3 msec

Average Acceleration: 8.7 g

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma
Headform Resultant

Max: 117.7 [g] at 0.008 [s]

Min: -0.0 [g] at -0.099 [s]

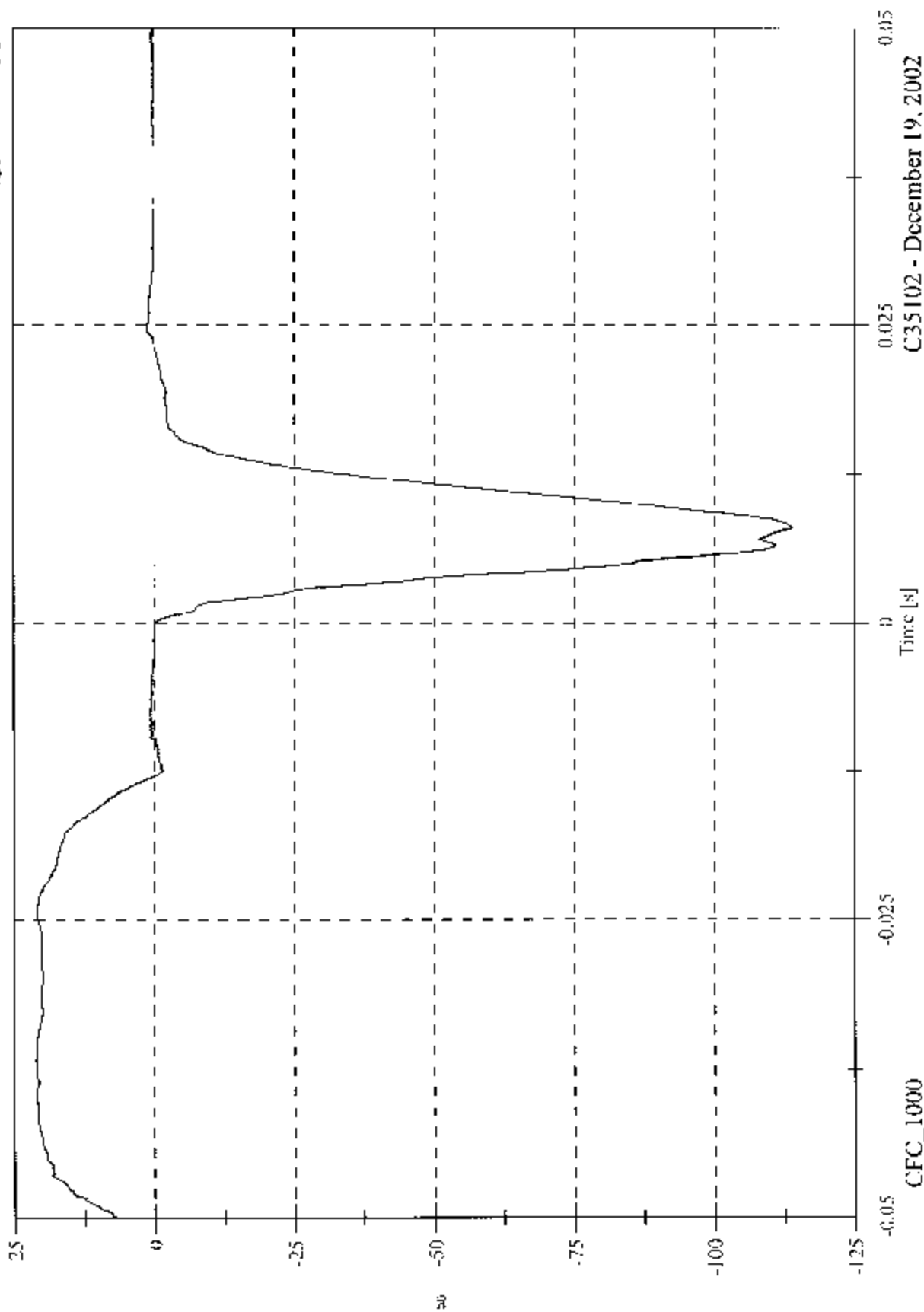


FMVSS 2010 IMPACT TEST - 2003 Toyota Tacoma

Headform X Acceleration

Max: 21.1 [g] at -0.037 [s]

Min: -113.7 [g] at 0.008 [s]

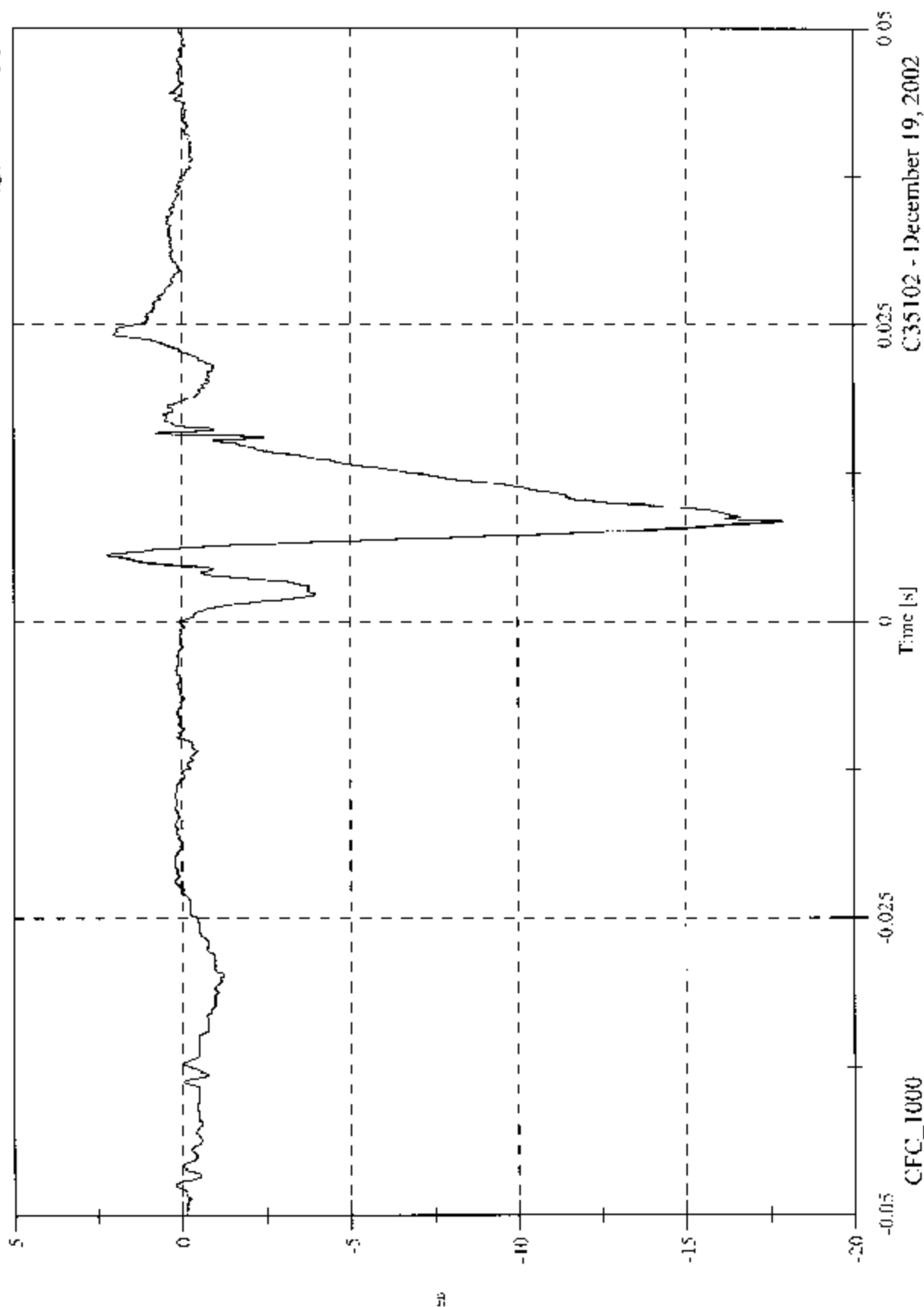


C35102 - December 19, 2002

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Y Acceleration

Max: 2.2 [g] at 0.006 [s]
Min: -17.9 [g] at 0.008 [s]

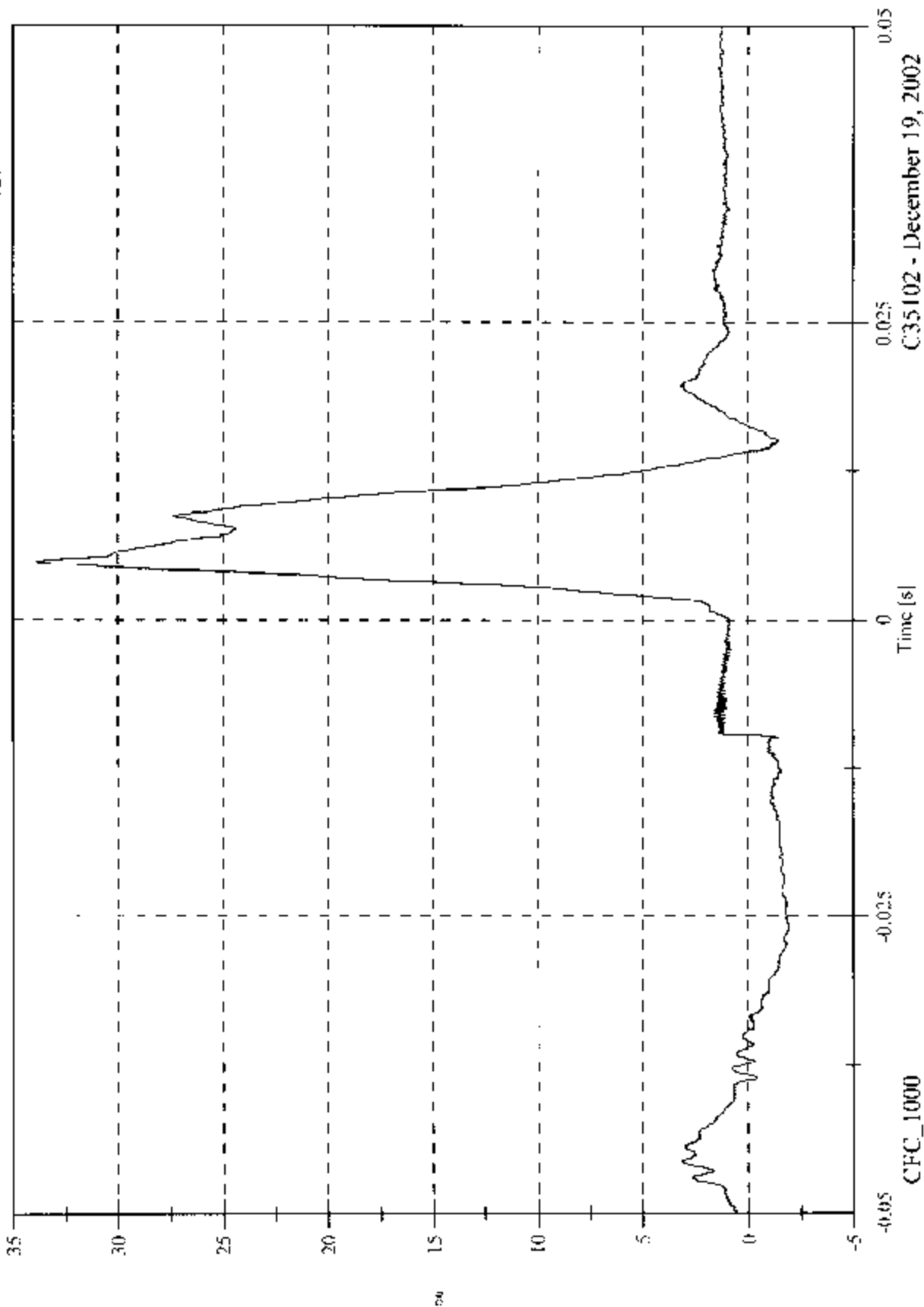


C35102 - December 19, 2002

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Max: 33.9 [g] at 0.005 [s]
Min: -2.0 [g] at -0.026 [s]

Leadform Z Acceleration



CFC_1000

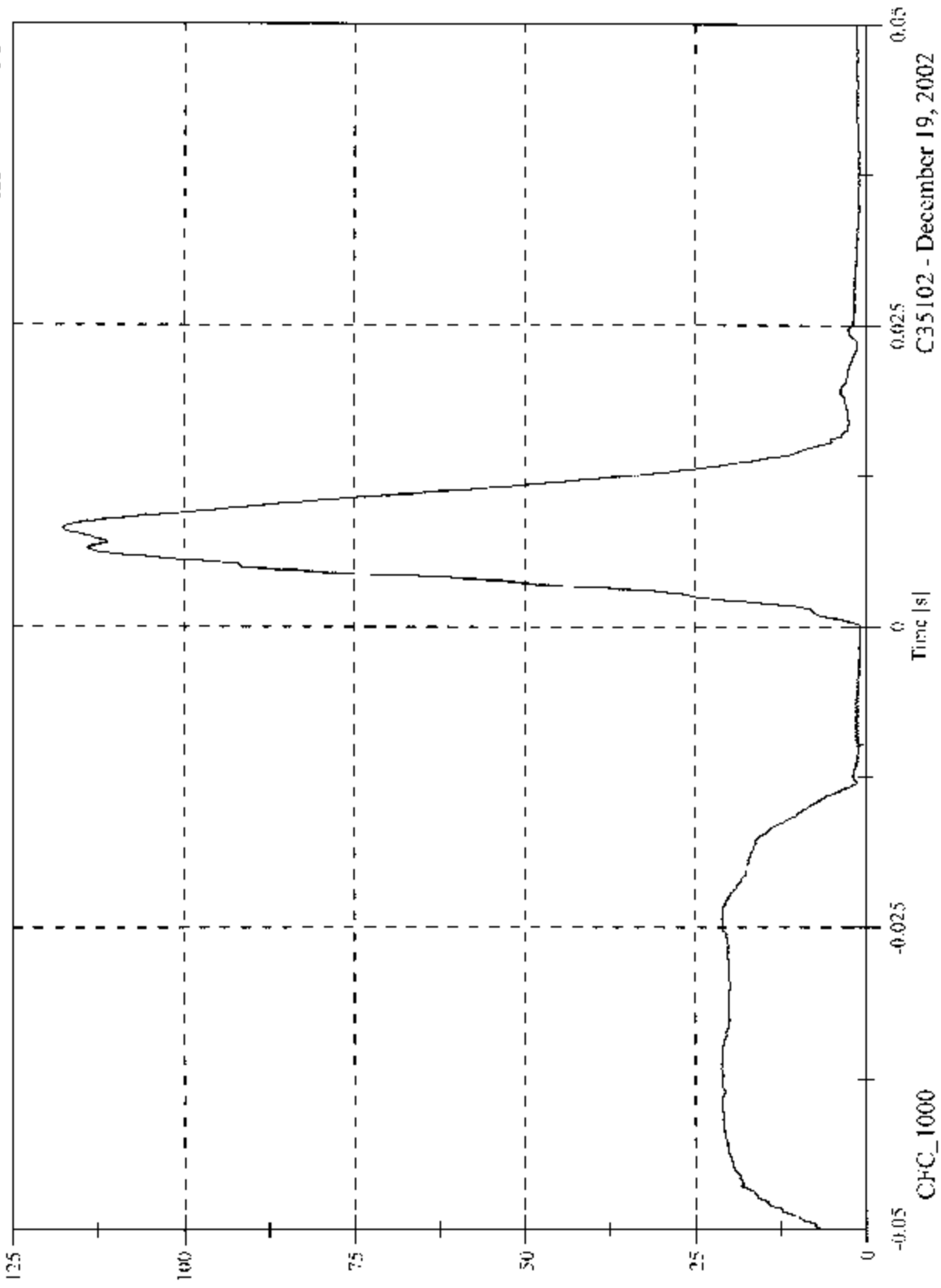
Time [s]

C35102 - December 19, 2002

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

1 Headform Resultant

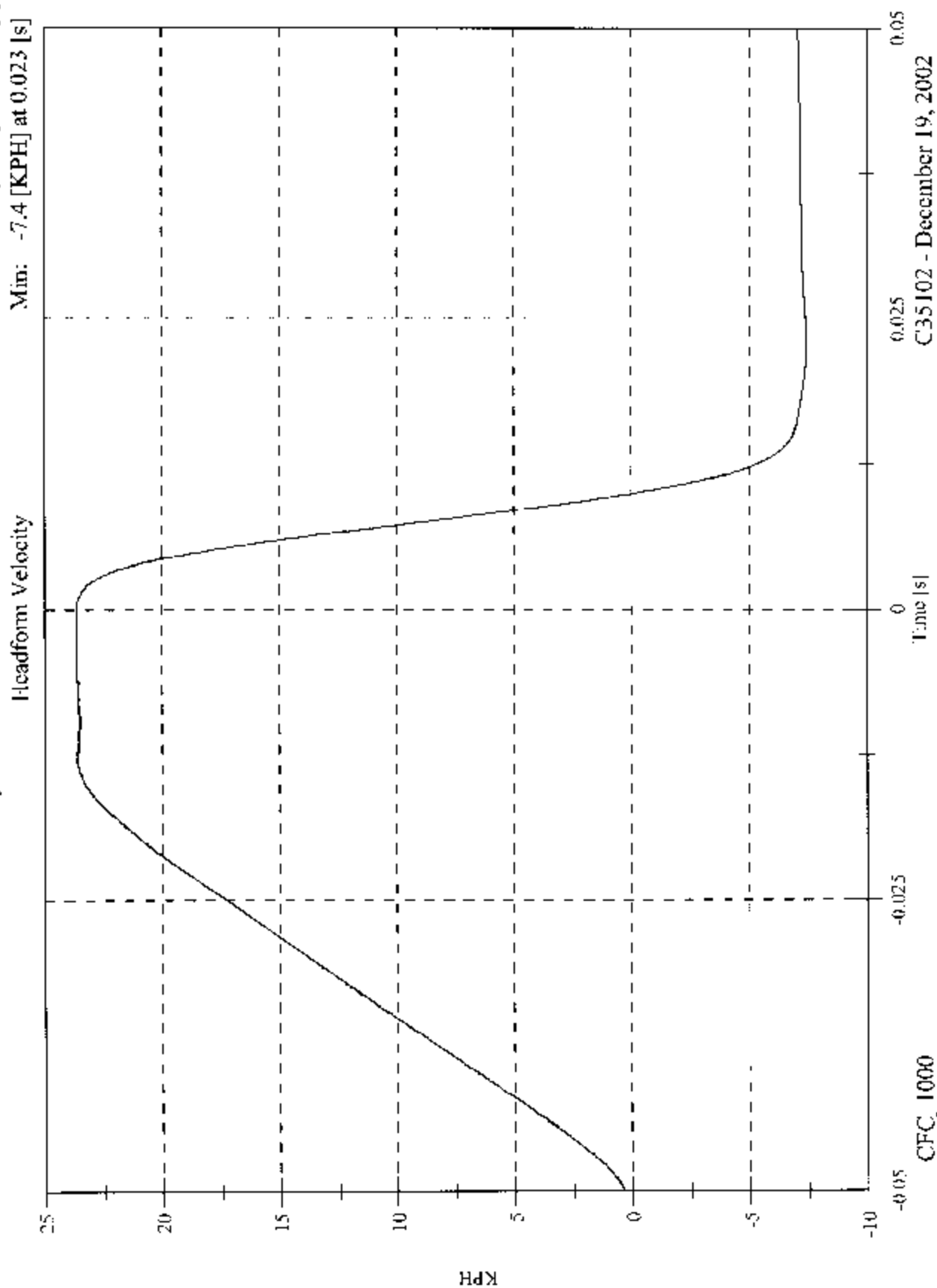
Max: 117.7 [g] at 0.008 [s]
Min: 0.4 [g] at -0.010 [s]



C35102 - December 19, 2002

FMVSS 2010 IMPACT TEST - 2003 Toyota Tacoma

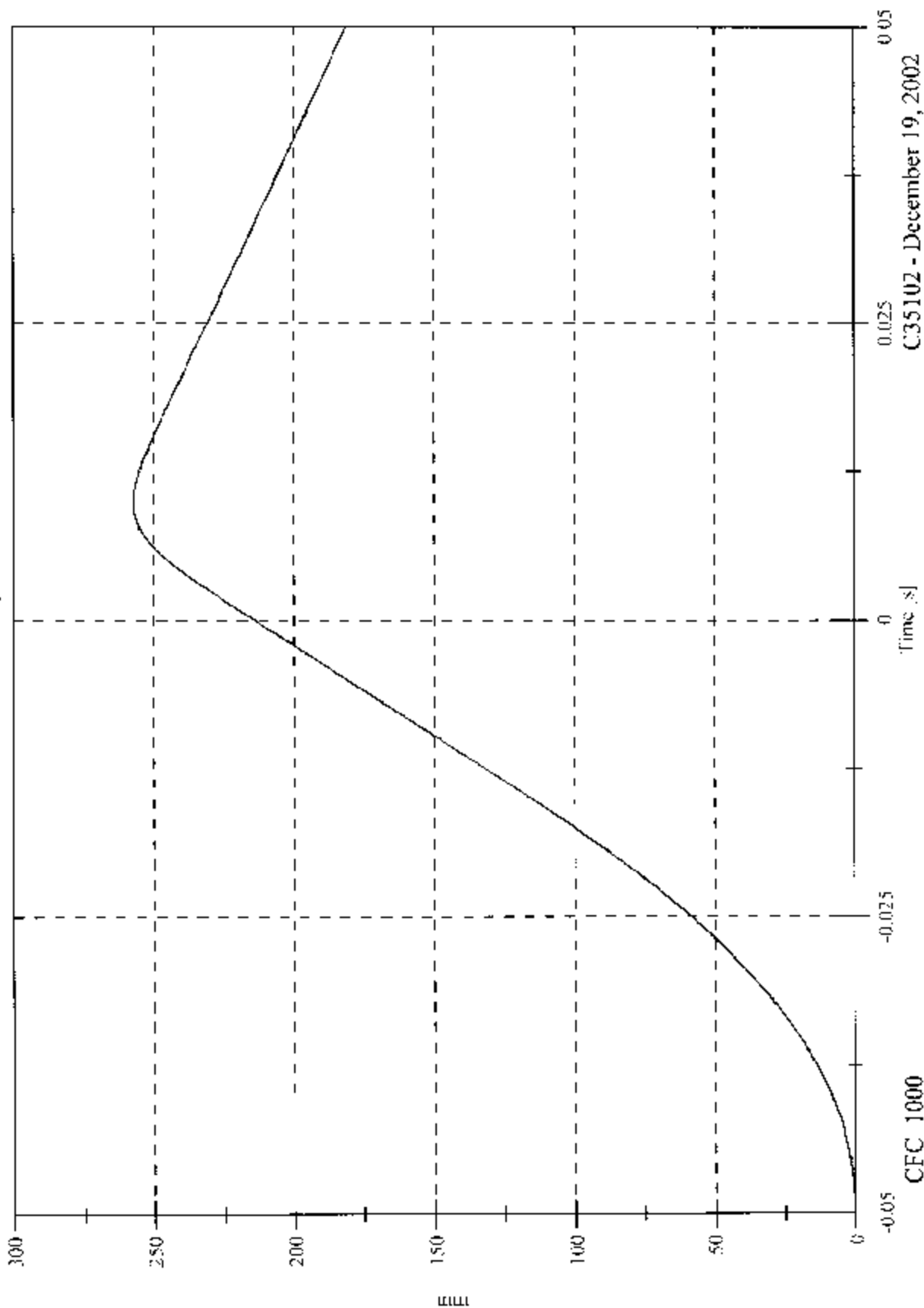
Max: 23.7 [KPH] at -0.001 [s]
 Min: -7.4 [KPH] at 0.023 [s]



FMVSS 2010 IMPACT TEST - 2003 Toyota Tacoma

Headform Displacement

Max: 257.5 [mm] at 0.010 [s]
Min: 0.3 [mm] at -0.050 [s]



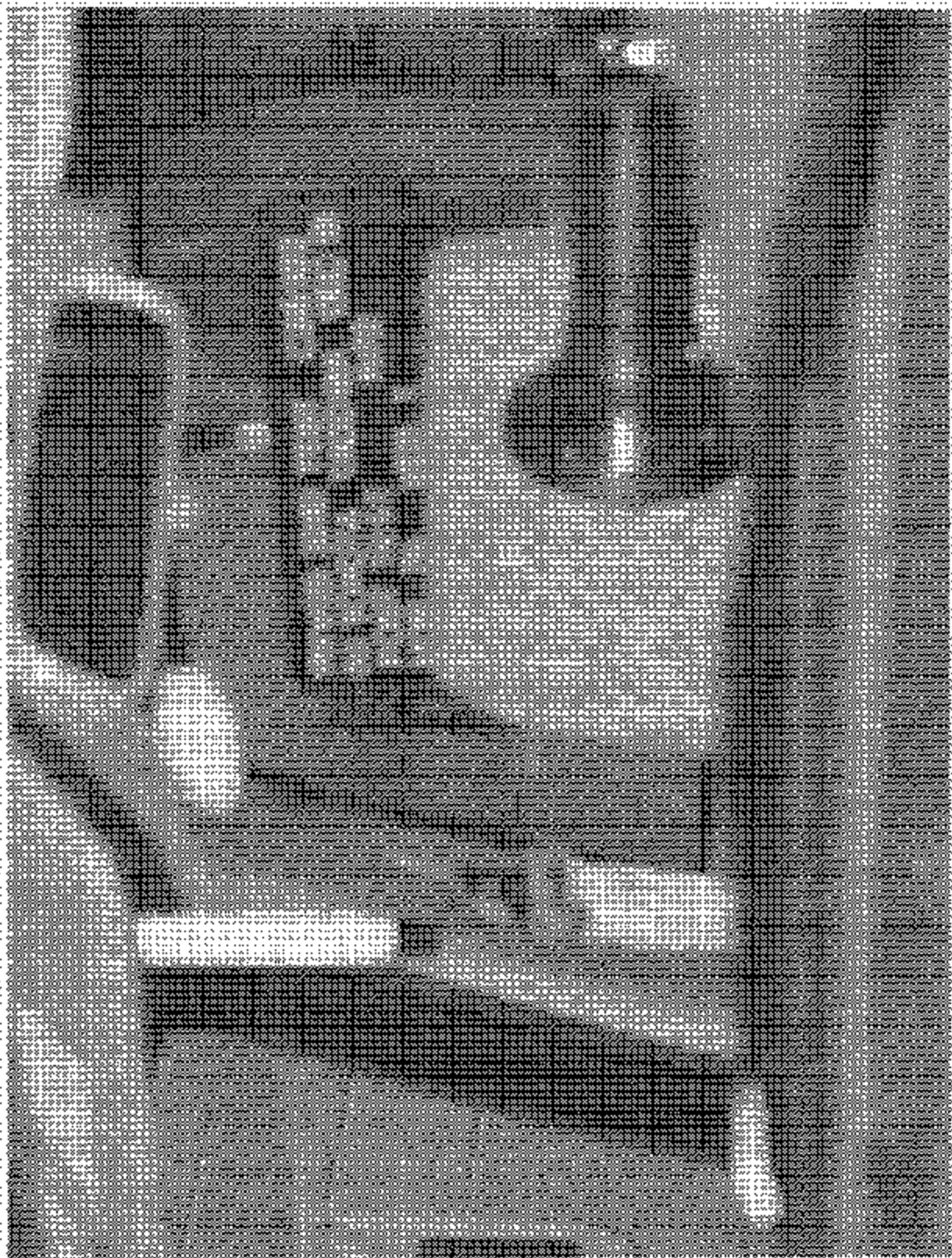
CFC_1000

-0.025

Time [s]

0.025

C35102 - December 19, 2002



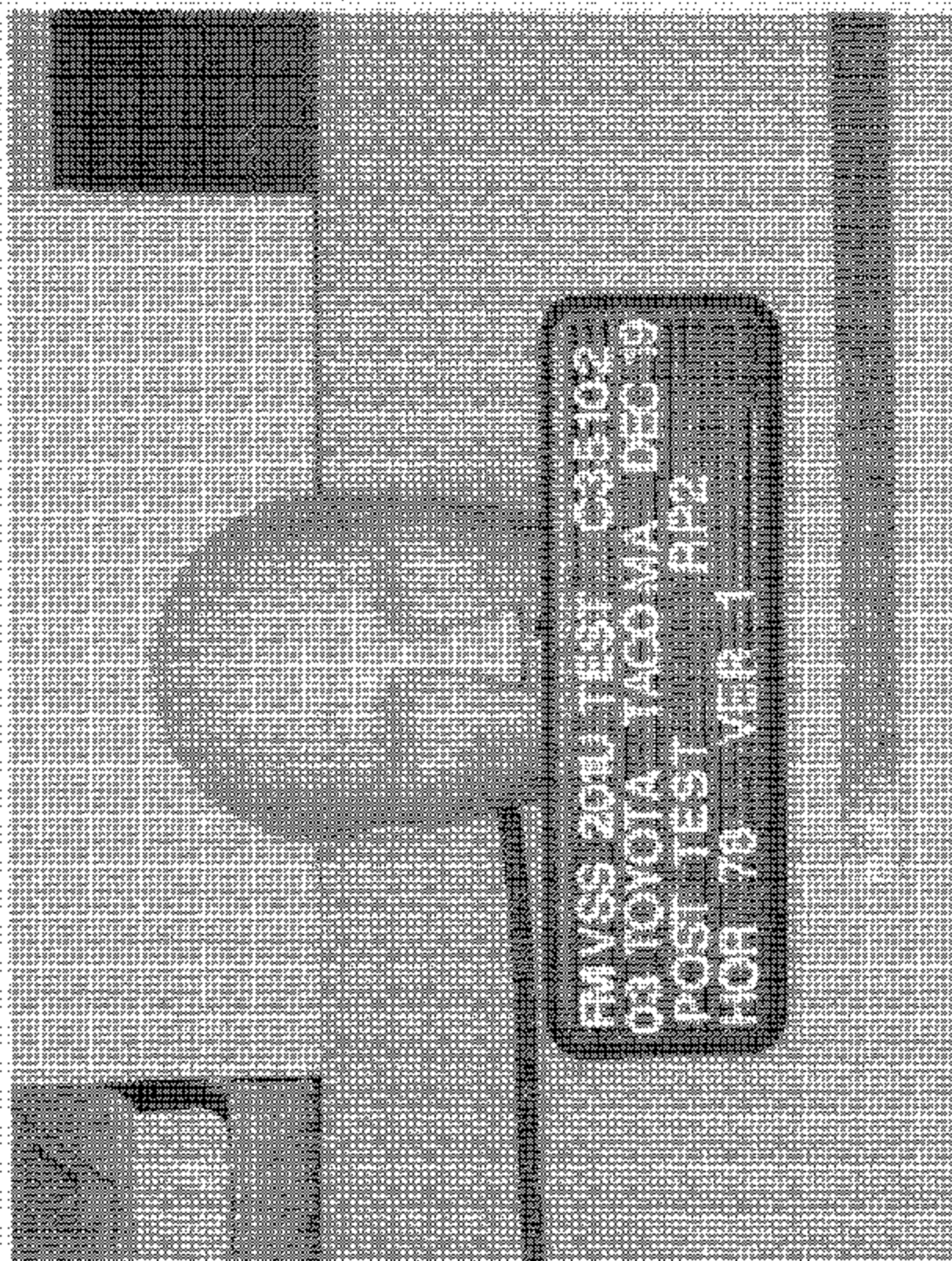


Figure 1: Test Vehicle

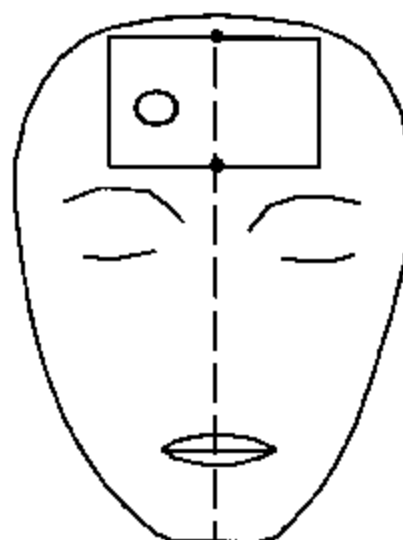
Year/Make/Model/Body Style: 2003 Toyota Tacoma Pick-up
 Vehicle Body Color: Gray VIN: 5TBNL42N63Z157419
 Vehicle NHTSA No.: C35102 Month & Year of Manufacture: 09/02

Test Number: 4 Test Date: December 19, 2002
 Target Location: Passenger Side Rear Pillar Target Code: RP1
 Horizontal Impact Angle: 52 ° Vertical Impact Angle: 17 °
 Ambient Temperature: 21.5 °C Time of Impact: 14:00
 Headform Number: 0805

Impact Point:

Description:

Description: from lower midpoint				
On centerline	55	mm up		
On centerline	33	x	mm right	- mm left



Free Motion HIC: 560.2 HIC(d): 589.0
 Impact Velocity (kph): 23.42 HIC1: 2.2 msec HIC2: 11.1 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma C35102 - RP1

FMH Headform 0805

Location: RP1

Test Date: December 19, 2002

Work File: fmb

-----TEST RESULTS-----

Lab Temperature: 21.5 C

HICd: 589.0

Lab Humidity: 20 %

HIC (36ms): 560.2

Velocity at Impact: 23.42 KPH

t1: 2.2 msec

t2: 11.1 msec

Free Flight Distance: 209.25 mm

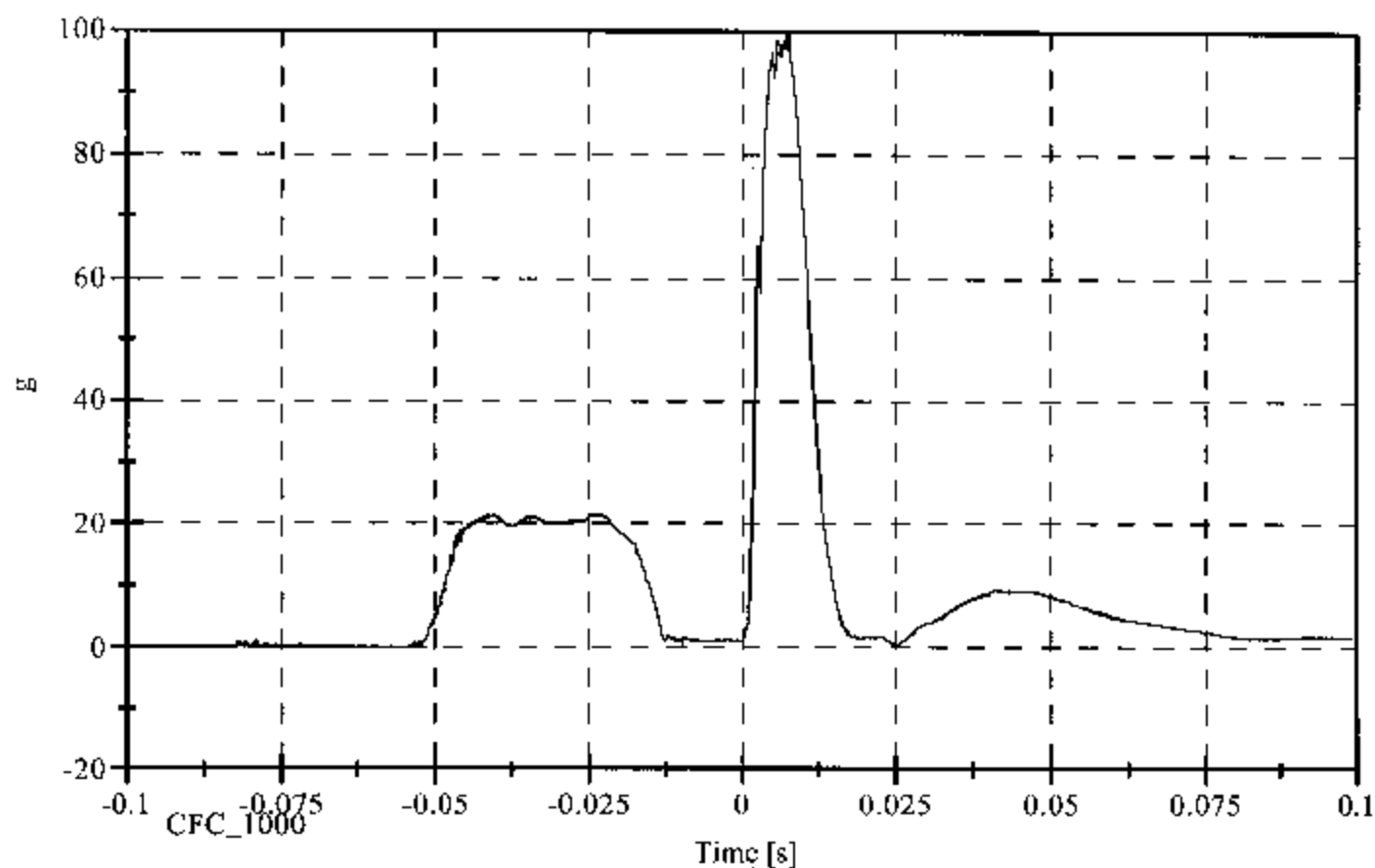
Duration: 8.9 msec

Average Acceleration: 9.6 g

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma
Headform Resultant

Max: 99.3 [g] at 0.007 [s]

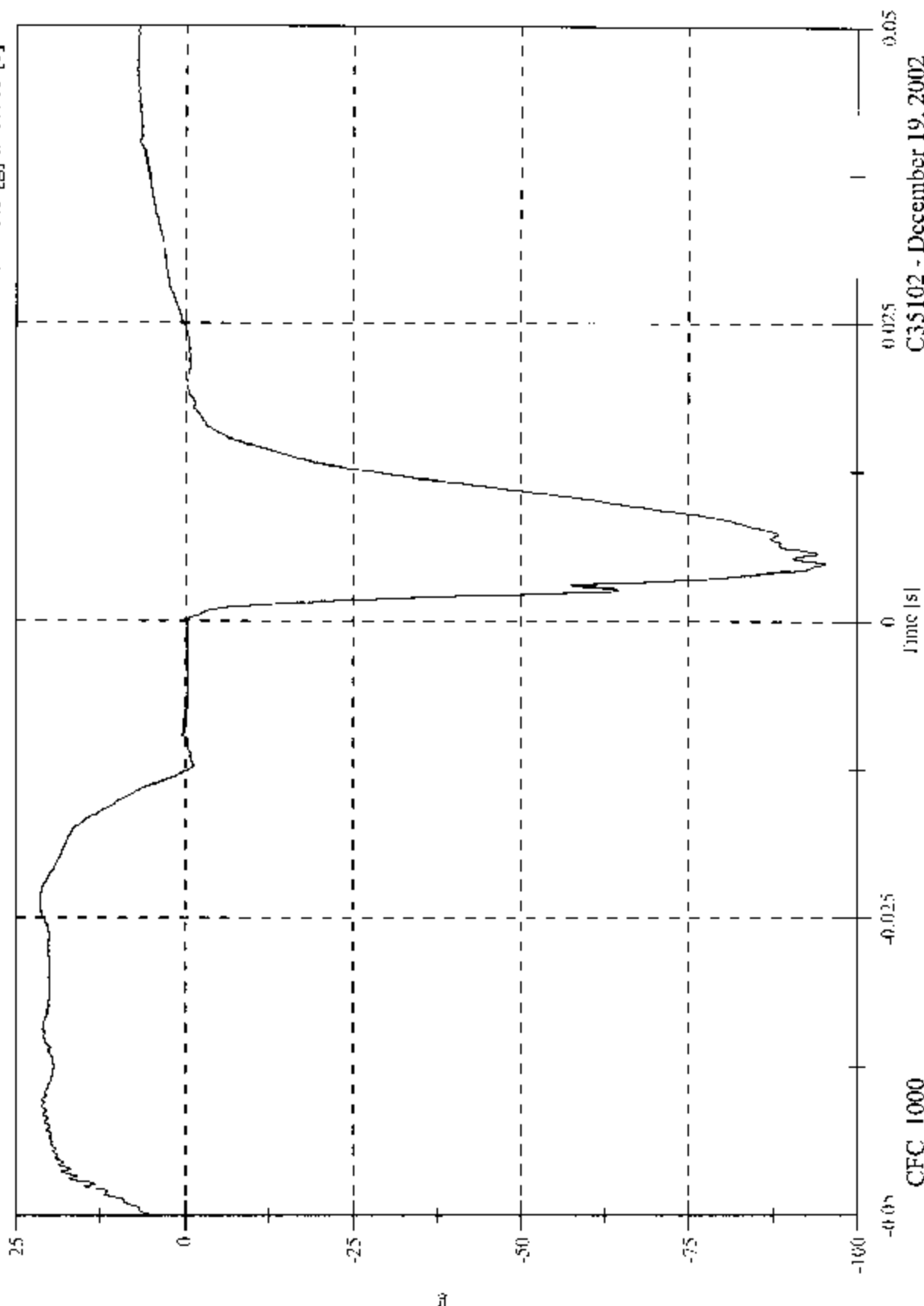
Min: -0.0 [g] at -0.099 [s]



FMVSS 2010 IMPACT TEST - 2003 Toyota Tacoma

Headform X Acceleration

Max: 21.5 [g] at -0.024 [s]
Min: -95.3 [g] at 0.005 [s]



CFC 1000

Time [s]

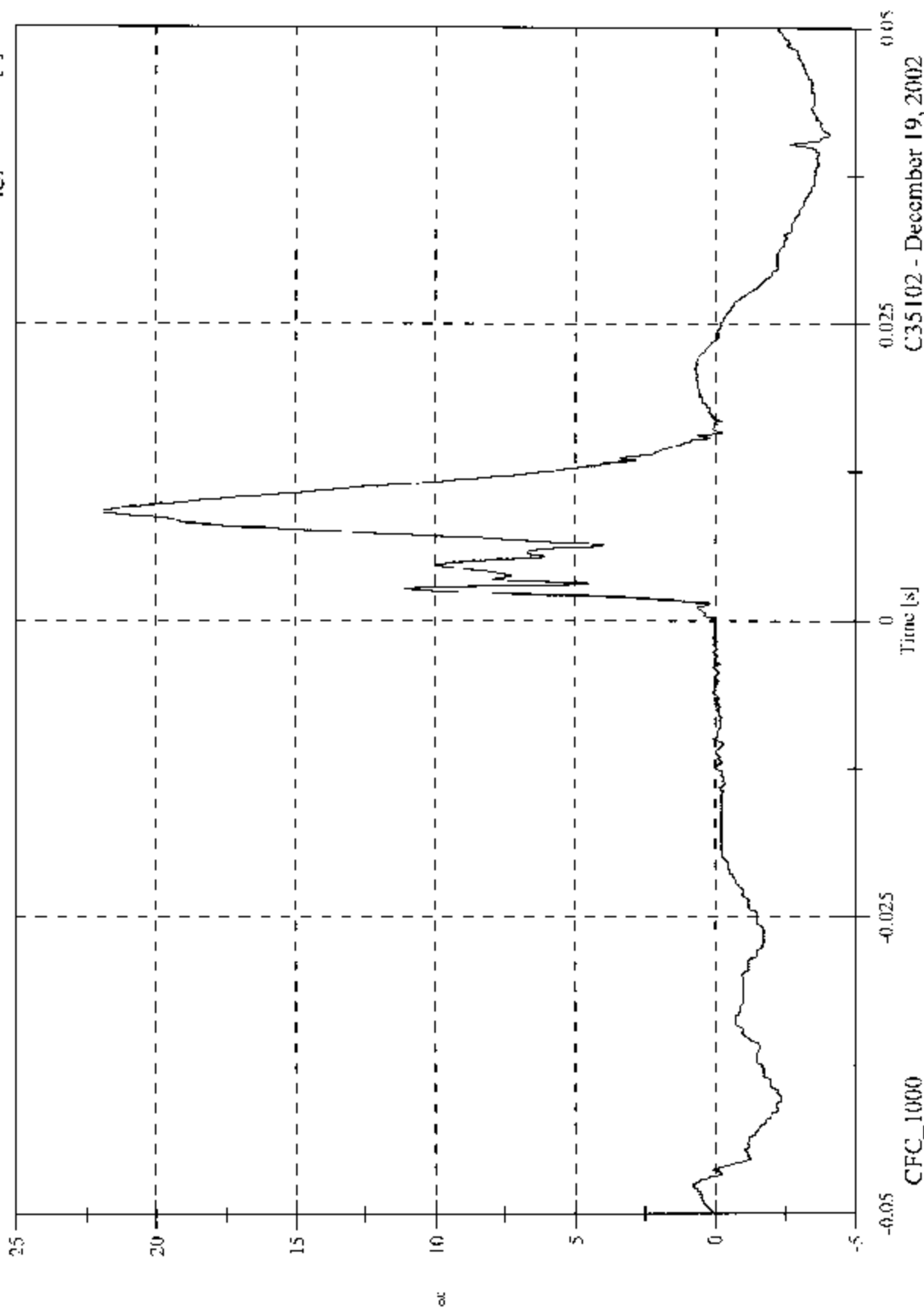
C35102 - December 19, 2002

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Y Acceleration

Max: 21.9 [g] at 0.009 [s]

Min: -4.1 [g] at 0.041 [s]

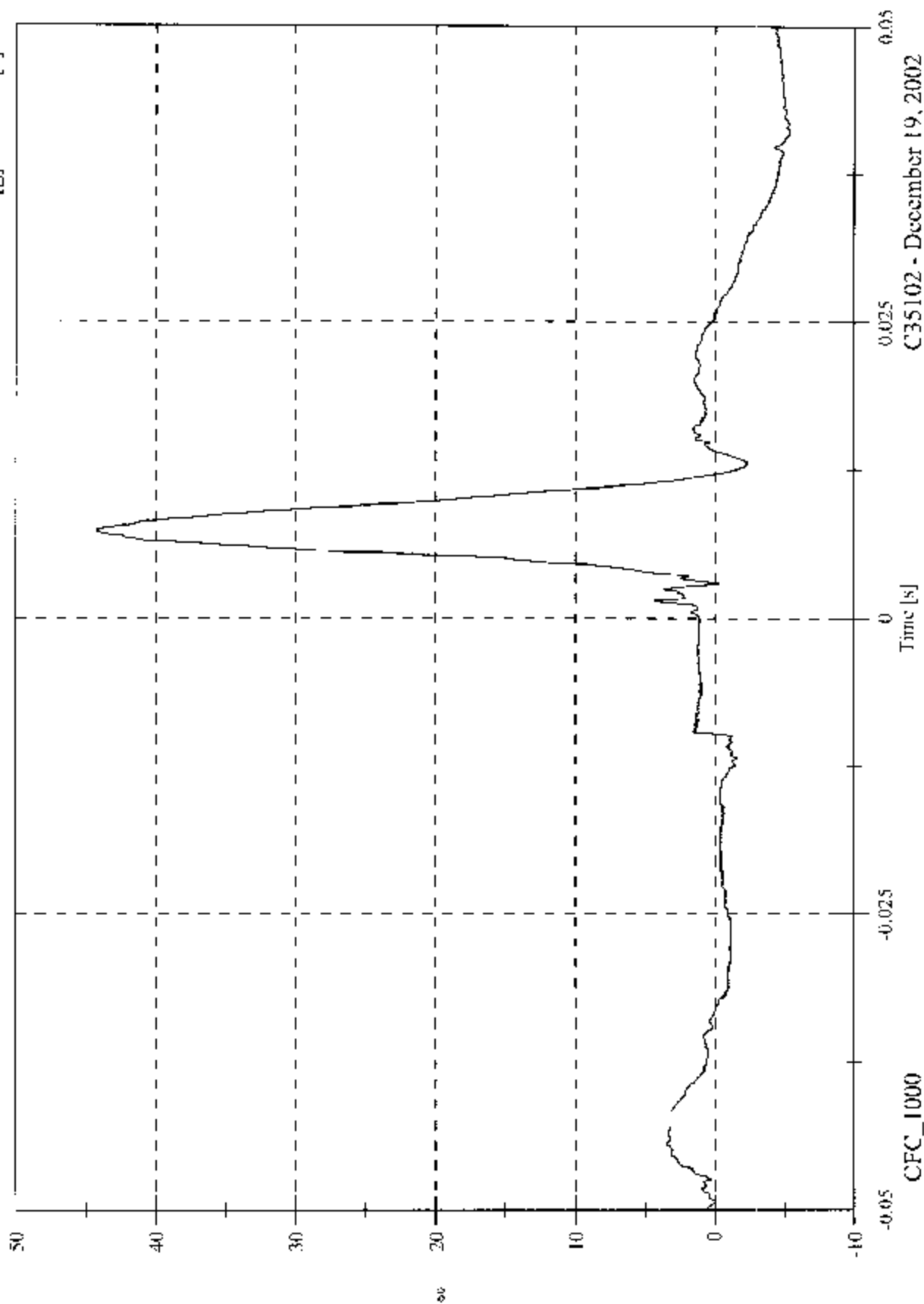


C35102 - December 19, 2002

FMVSS 201C IMPACT TEST - 2003 Toyota Tacoma

Headform Z Acceleration

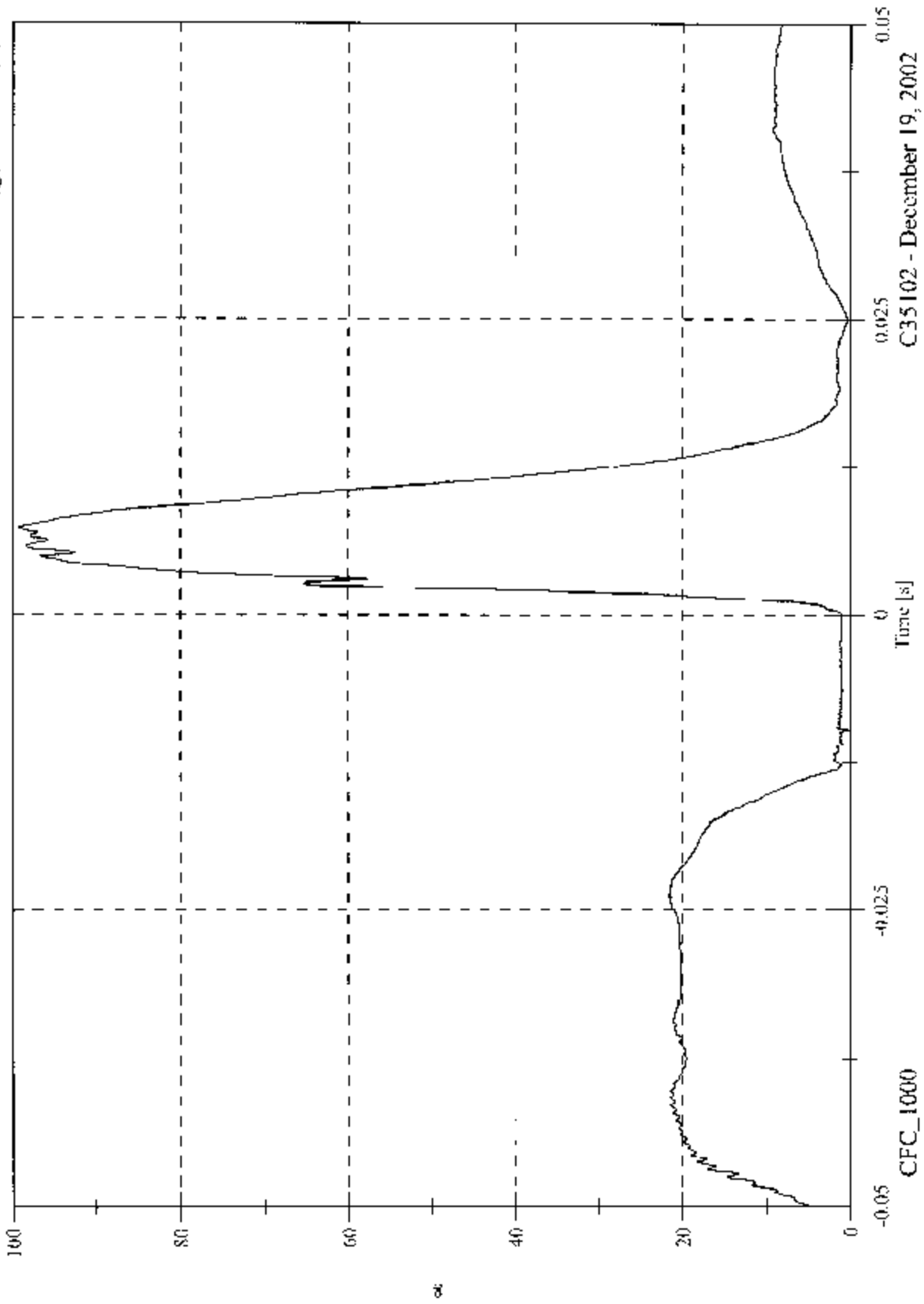
Max: 44.2 [g] at 0.007 [s]
Min: -5.3 [g] at 0.041 [s]



FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Resultant

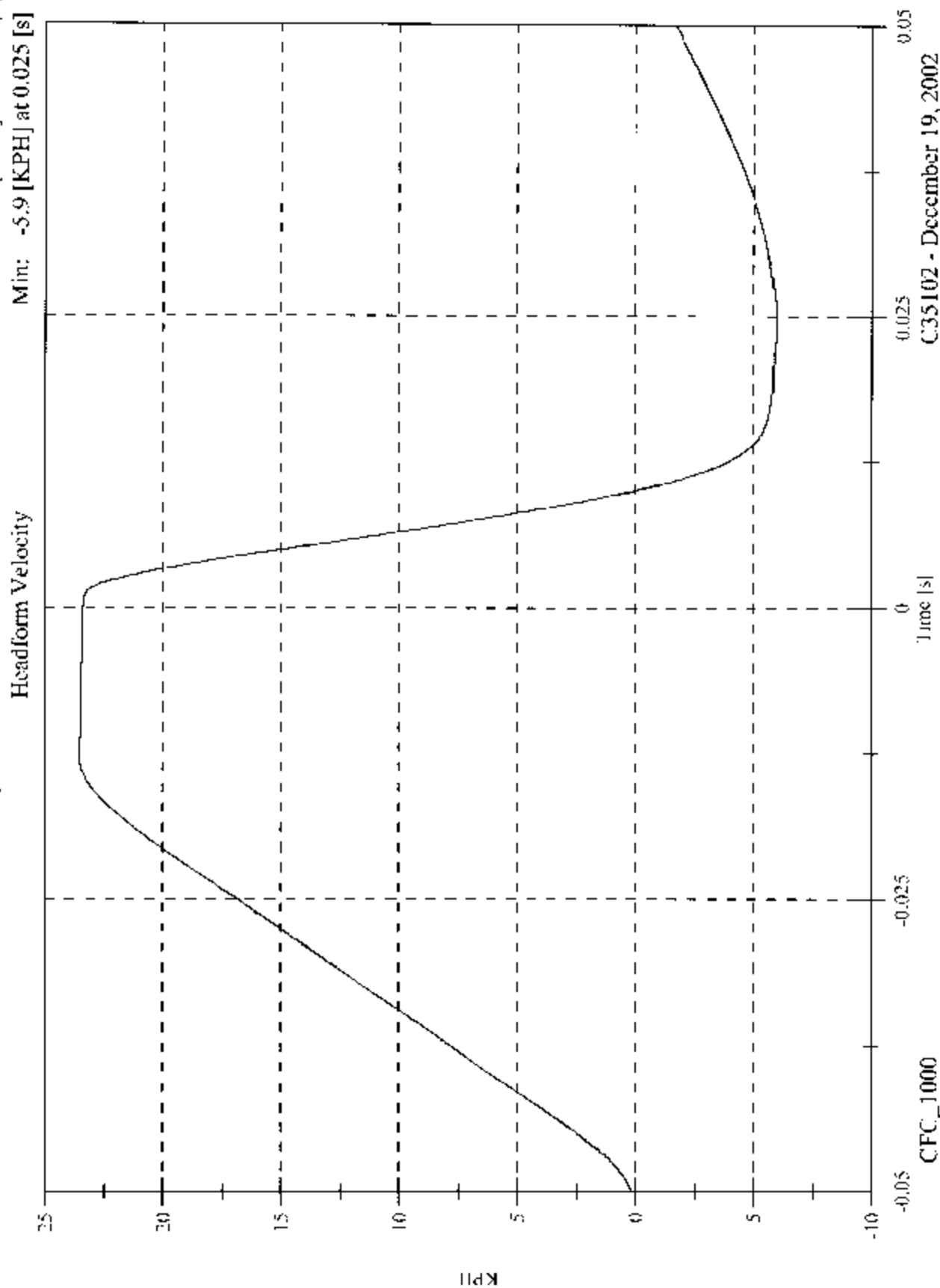
Max: 99.3 [g] at 0.007 [s]
Min: 0.2 [g] at -0.010 [s]



C35102 RPI IMPACT PLOT #4

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Max: 23.6 [KPH] at -0.013 [s]
 Min: -5.9 [KPH] at 0.025 [s]

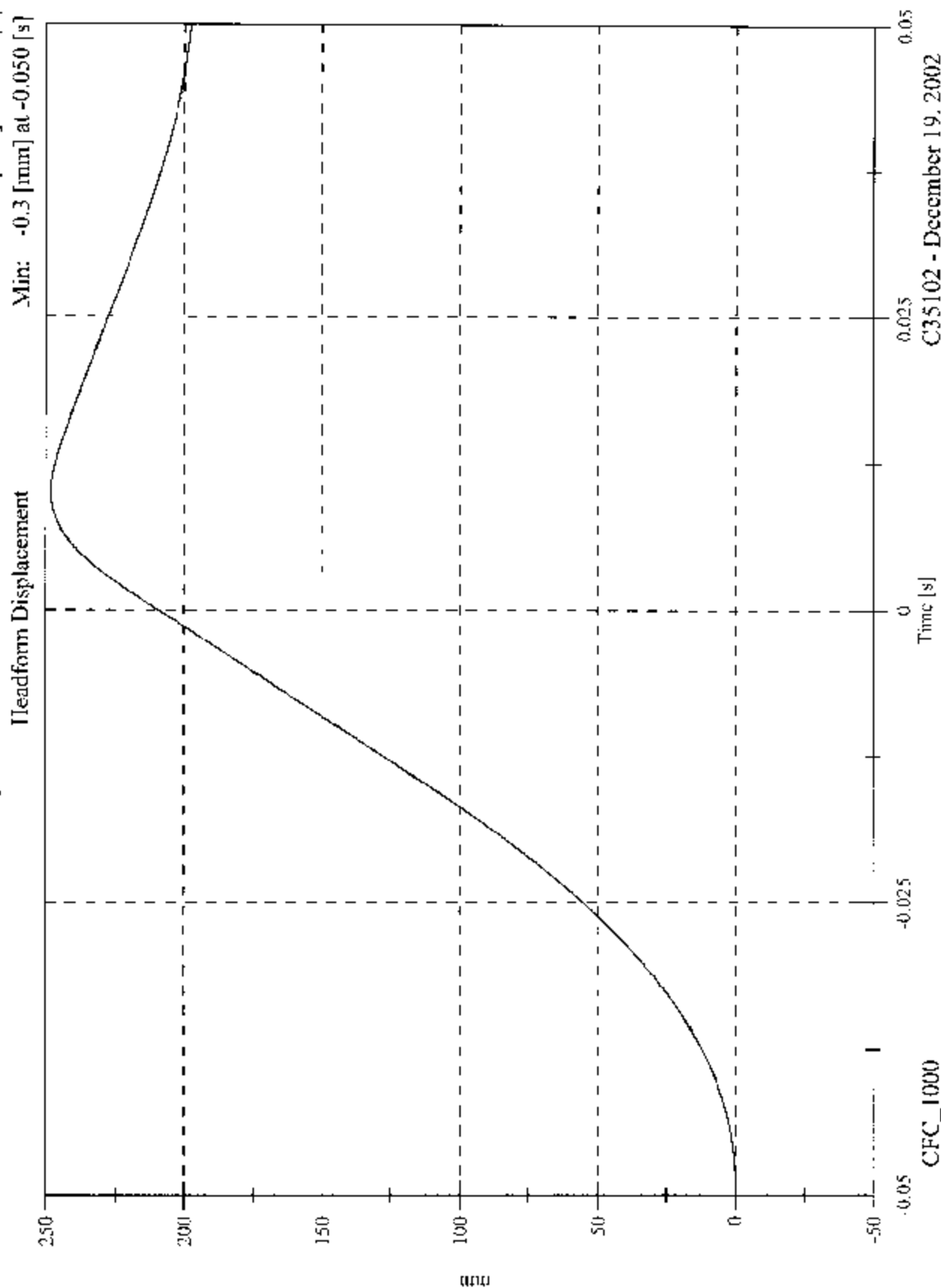


CFC_1000

Time [s]

C35102 - December 19, 2002

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma



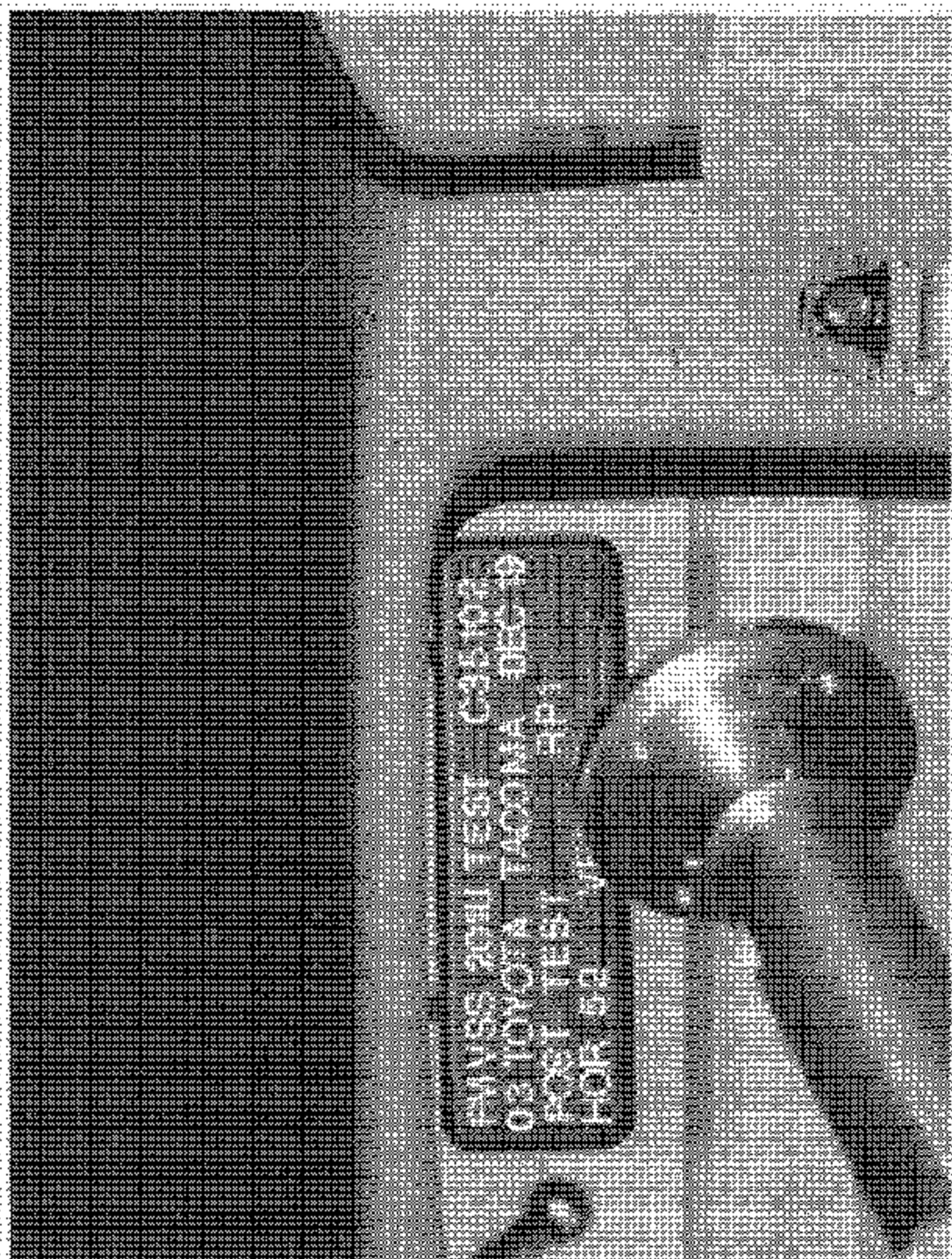


Figure 1: TEST TEST RP

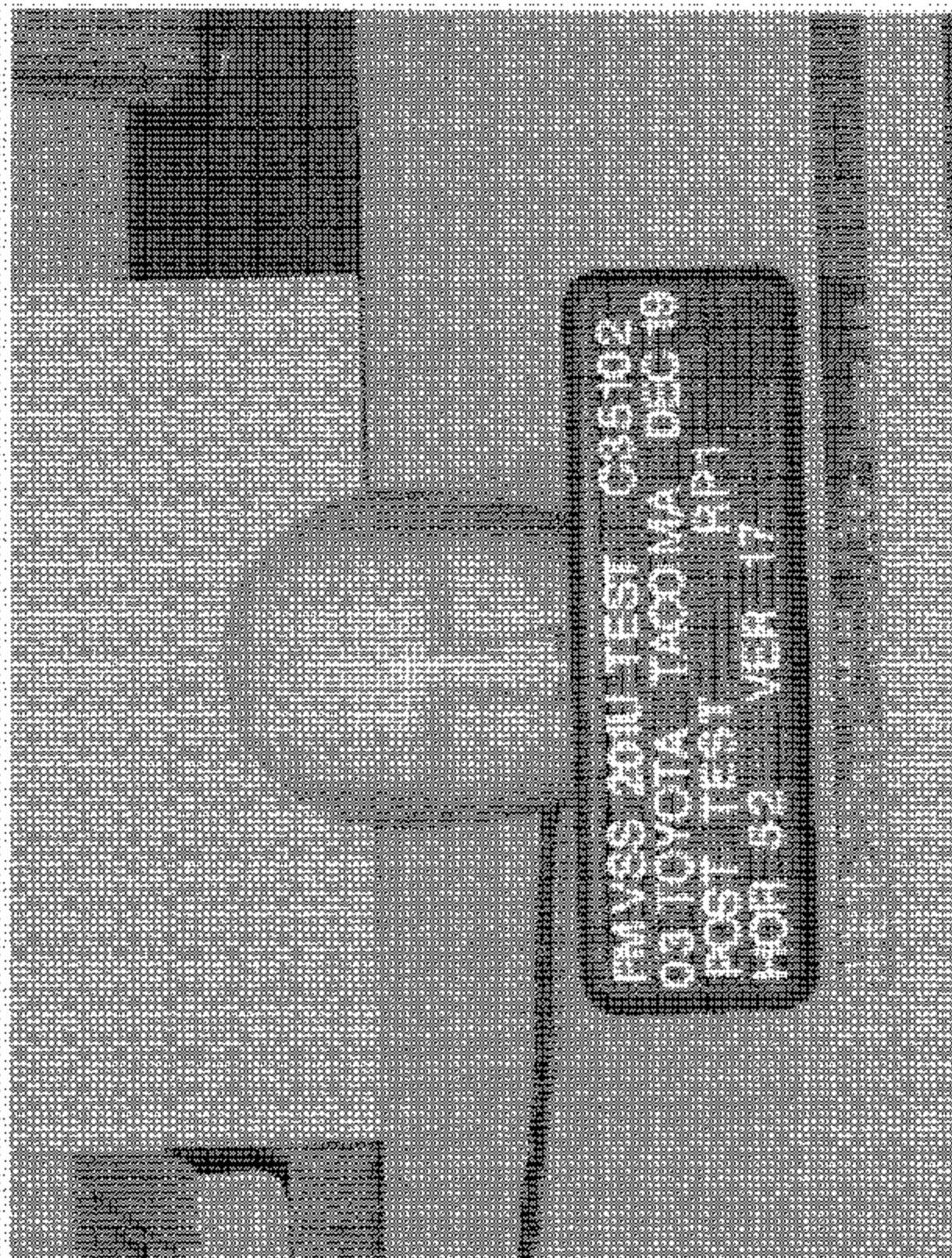


Figure 7. SPILL-ECU/M

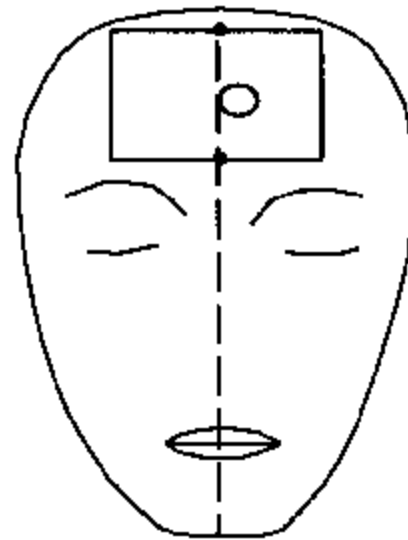
Year/Make/Model/Body Style: 2003 Toyota Tacoma Pick-up
 Vehicle Body Color: Gray VIN: 5TFT142N63Z157419
 Vehicle NHTSA No.: C35102 Month & Year of Manufacture: September

Test Number: 5 Test Date: December 19, 2002
 Target Location: Passenger Side Side Rail Target Code: SR2R
 Horizontal Impact Angle: 90 ° Vertical Impact Angle: 31 °
 Ambient Temperature: 21.5 °C Time of Impact: 14:37
 Headform Number: 1255

Impact Point:

Description:

Description:	From lower midpoint				
On centerline	20	mm up			
On centerline	5	-	mm right	x	mm left



Free Motion HIC: 416.6 HIC(d): 480.7
 Impact Velocity (kph): 23.42 HIC1: 1.7 msec HIC2: 12.3 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma C35102 - SR2R

FMH Headform 1255

Location: SR2R

Test Date: December 19, 2002

Work File: fmh

-----TEST RESULTS-----

Lab Temperature: 21.5 C

HICd: 480.7

Lab Humidity: 20 %

HIC (36ms): 416.6

Velocity at Impact: 23.42 KPH

t1: 1.7 msec

t2: 12.3 msec

Free Flight Distance: 213.57 mm

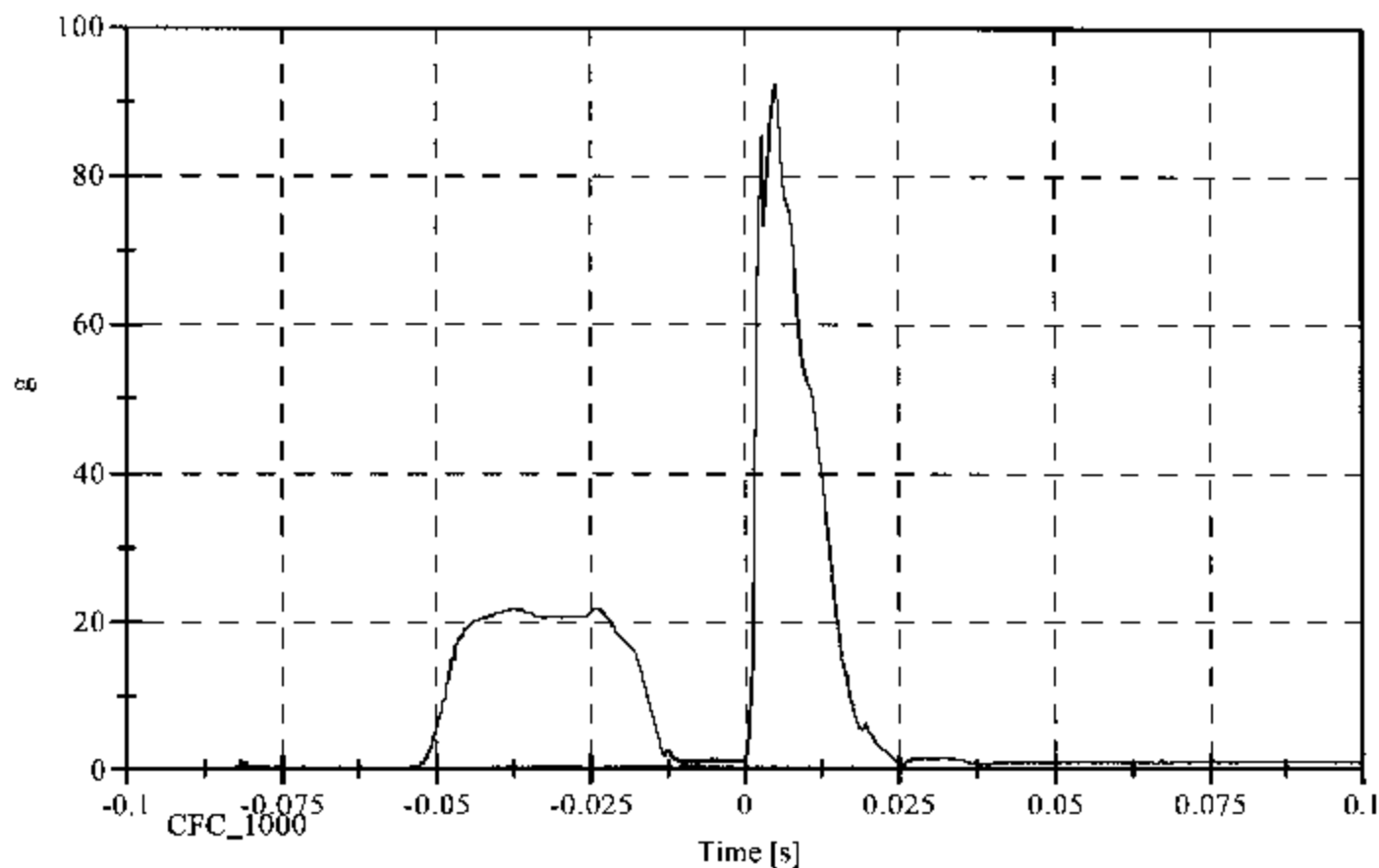
Duration: 10.5 msec

Average Acceleration: 8.4 g

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma
Headform Resultant

Max: 92.4 [g] at 0.005 [s]

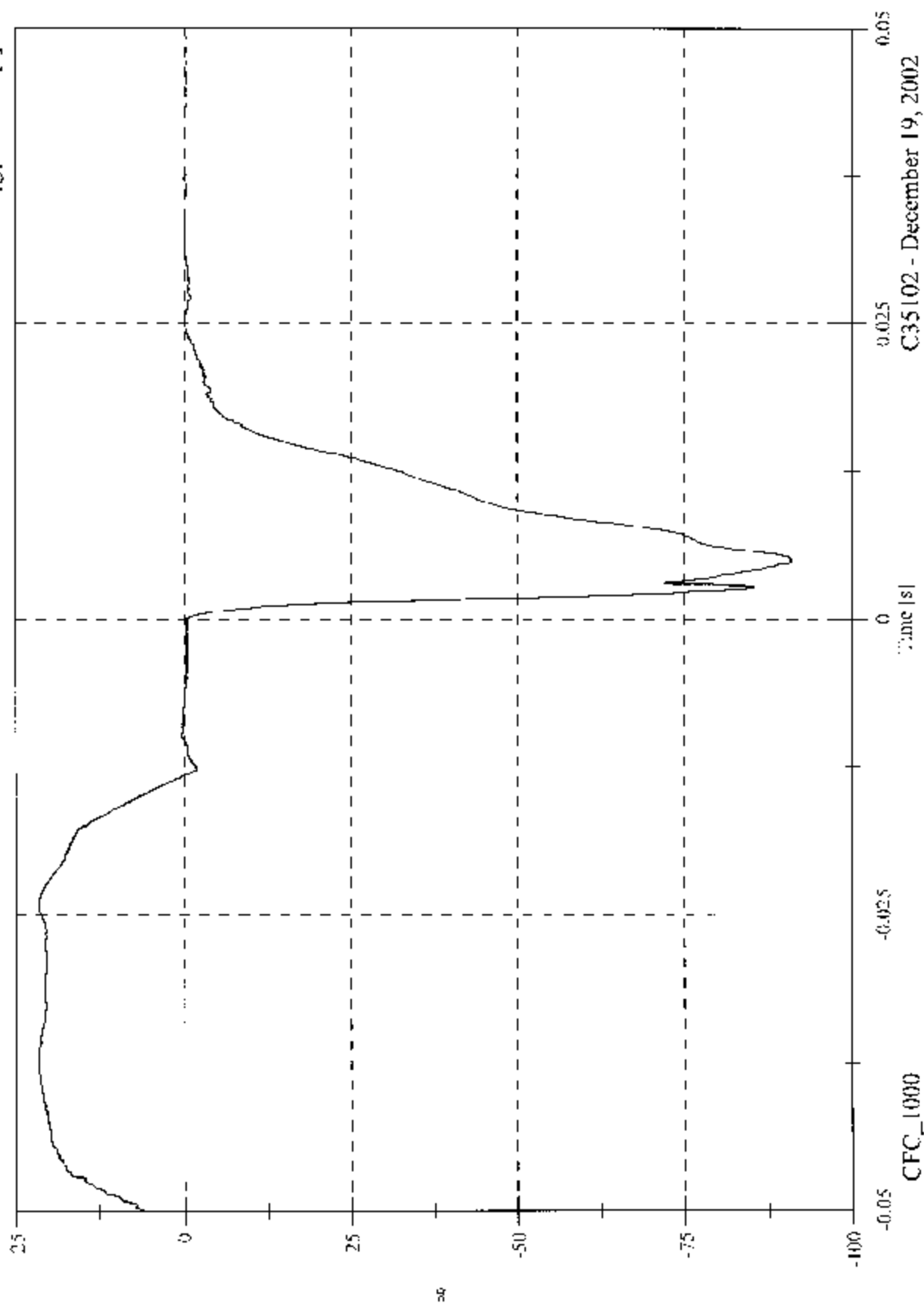
Min: 0.0 [g] at -0.096 [s]



FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform X Acceleration

Max: 21.7 [g] at -0.037 [s]
Min: -91.0 [g] at 0.005 [s]

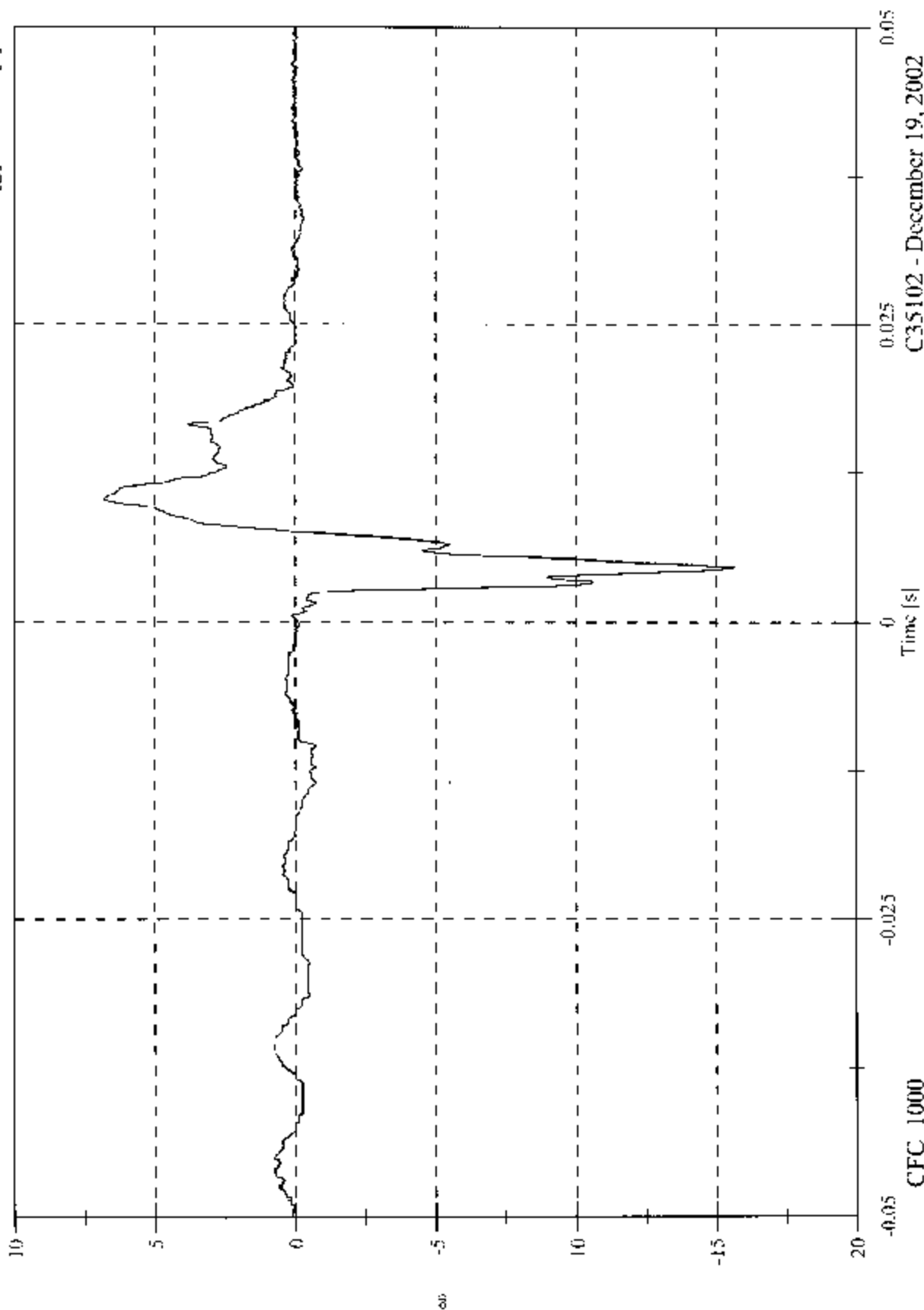


C35102 - December 19, 2002

FMVSS 201U IMPACT TEST 2003 Toyota Tacoma

Headform Y Acceleration

Max: 6.8 [g] at 0.010 [s]
Min: -15.7 [g] at 0.005 [s]



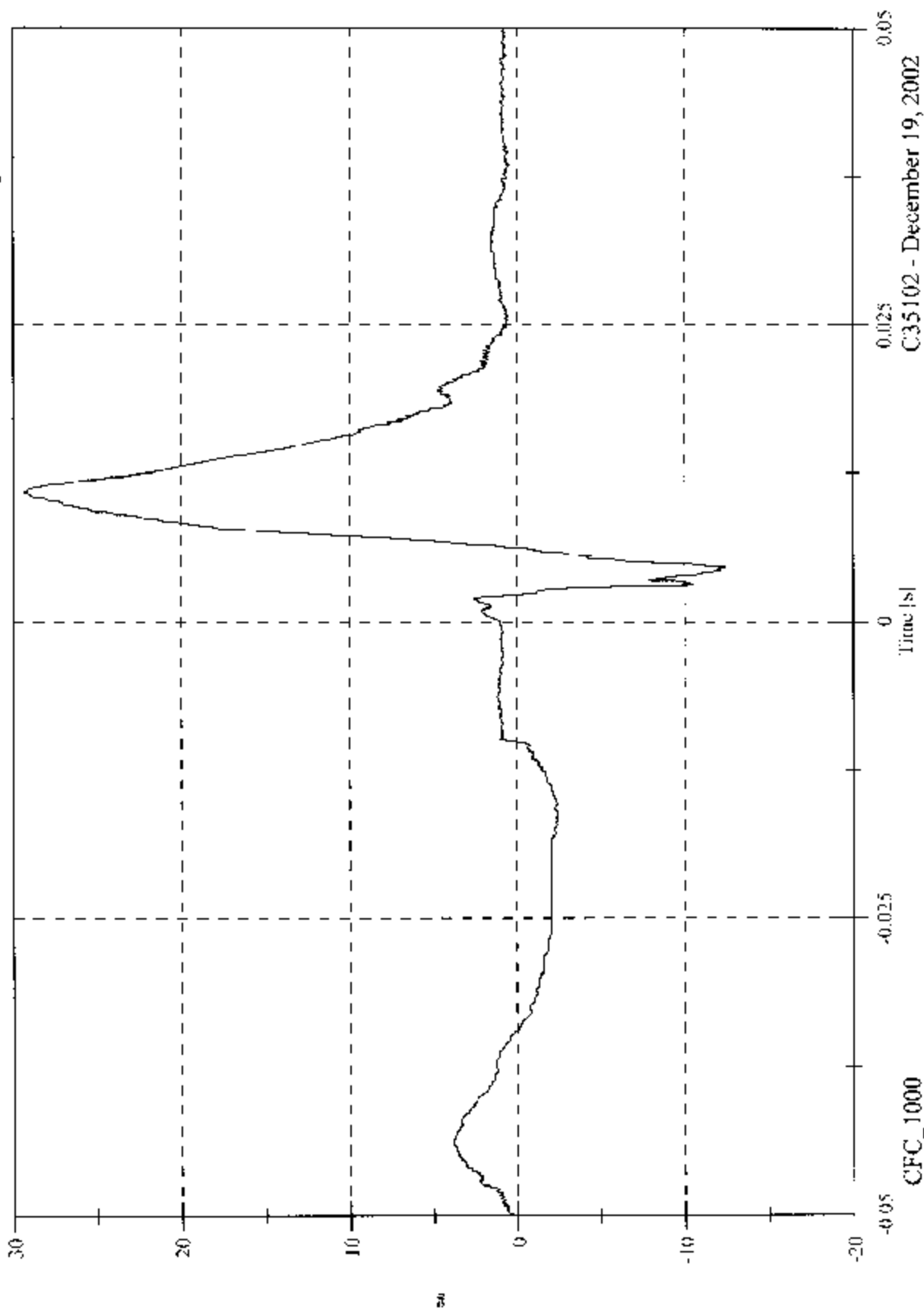
C35102 - December 19, 2002

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Z Acceleration

Max: 29.4 [g] at 0.011 [s]

Min: -12.4 [g] at 0.005 [s]

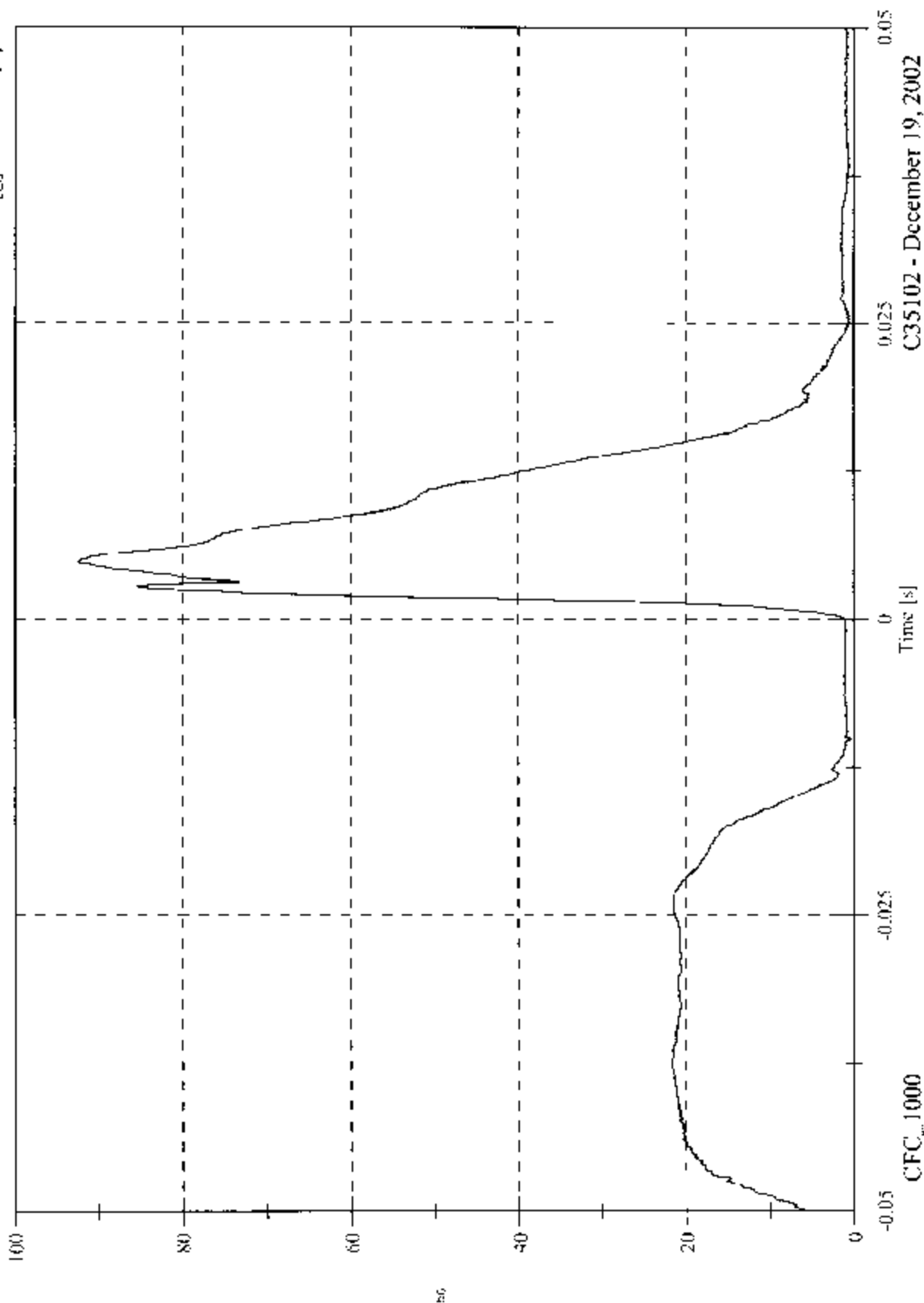


C35102 - December 19, 2002

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Resultant

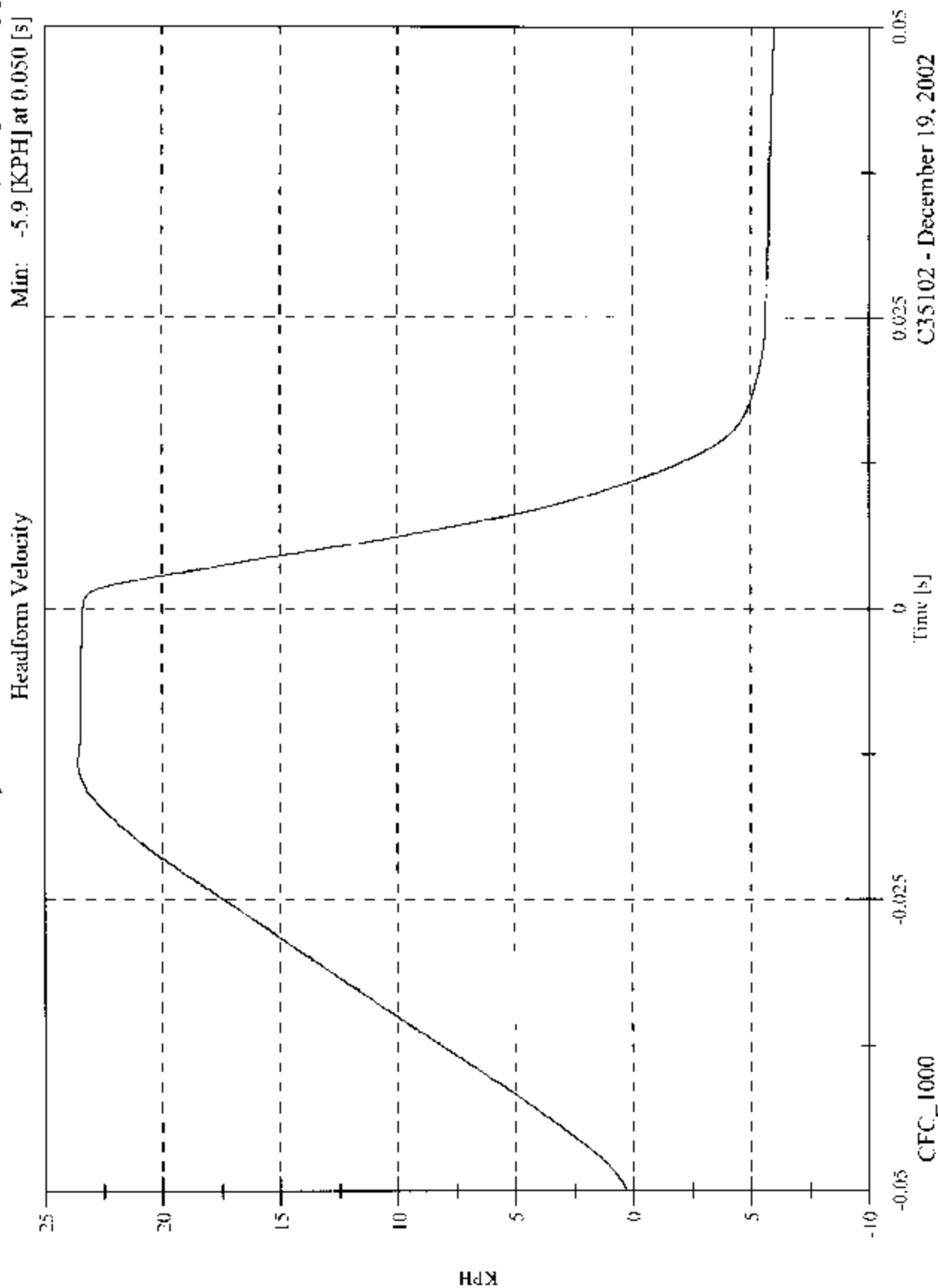
Max: 92.4 [g] at 0.005 [s]
Min: 0.4 [g] at -0.010 [s]



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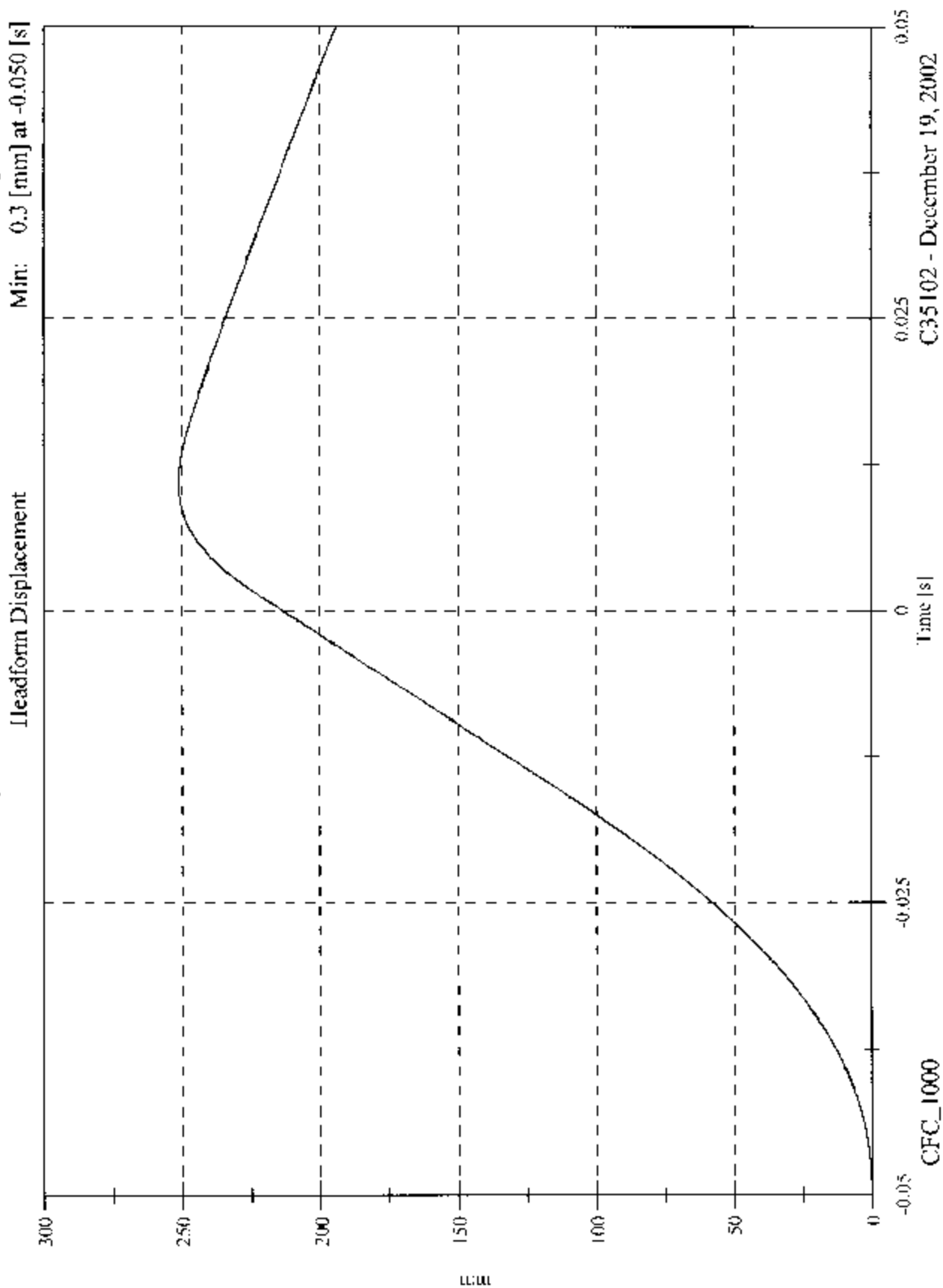
FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

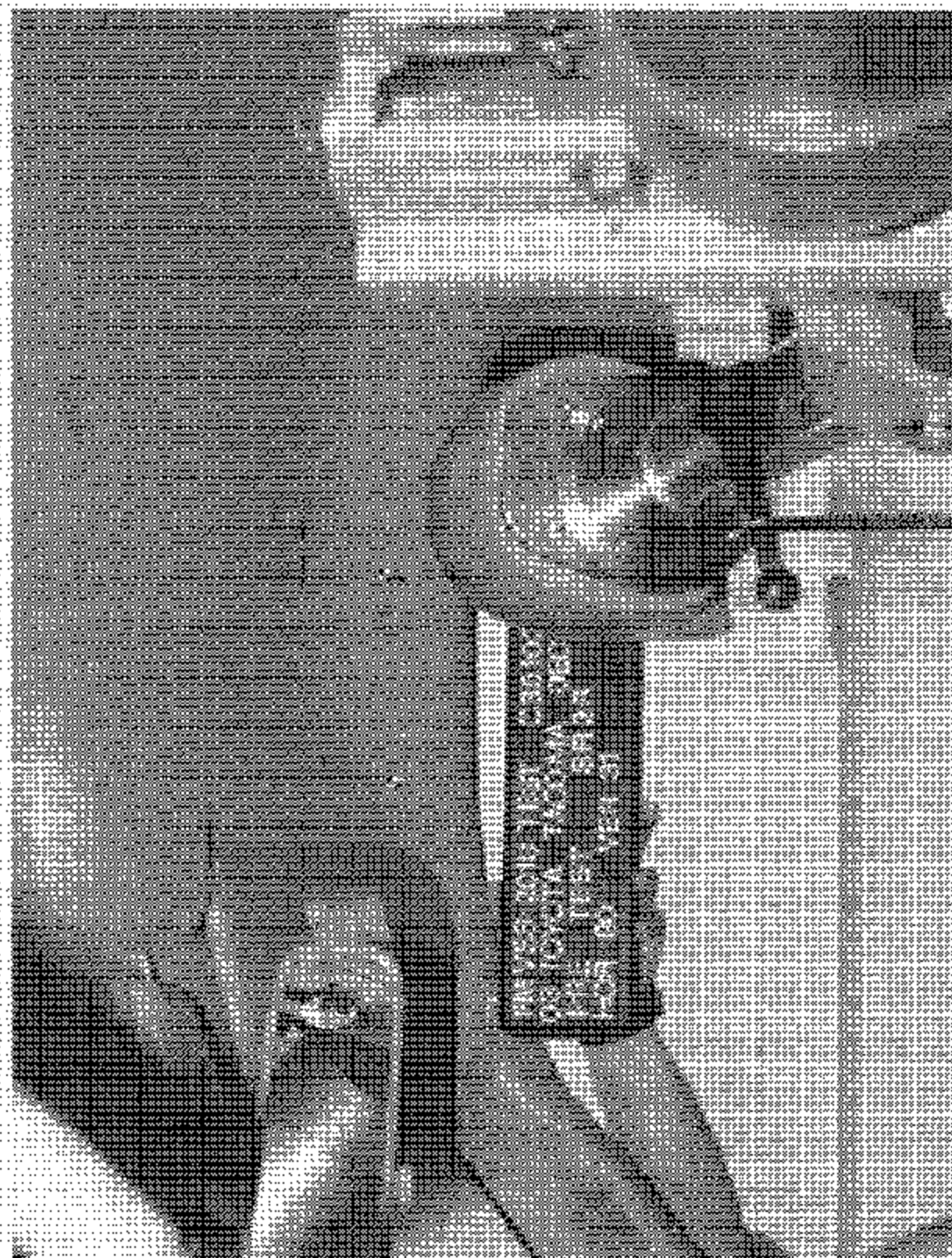
Max: 23.6 [KPH] at -0.013 [s]
 Min: -5.9 [KPH] at 0.050 [s]



C35102 - December 19, 2002

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma





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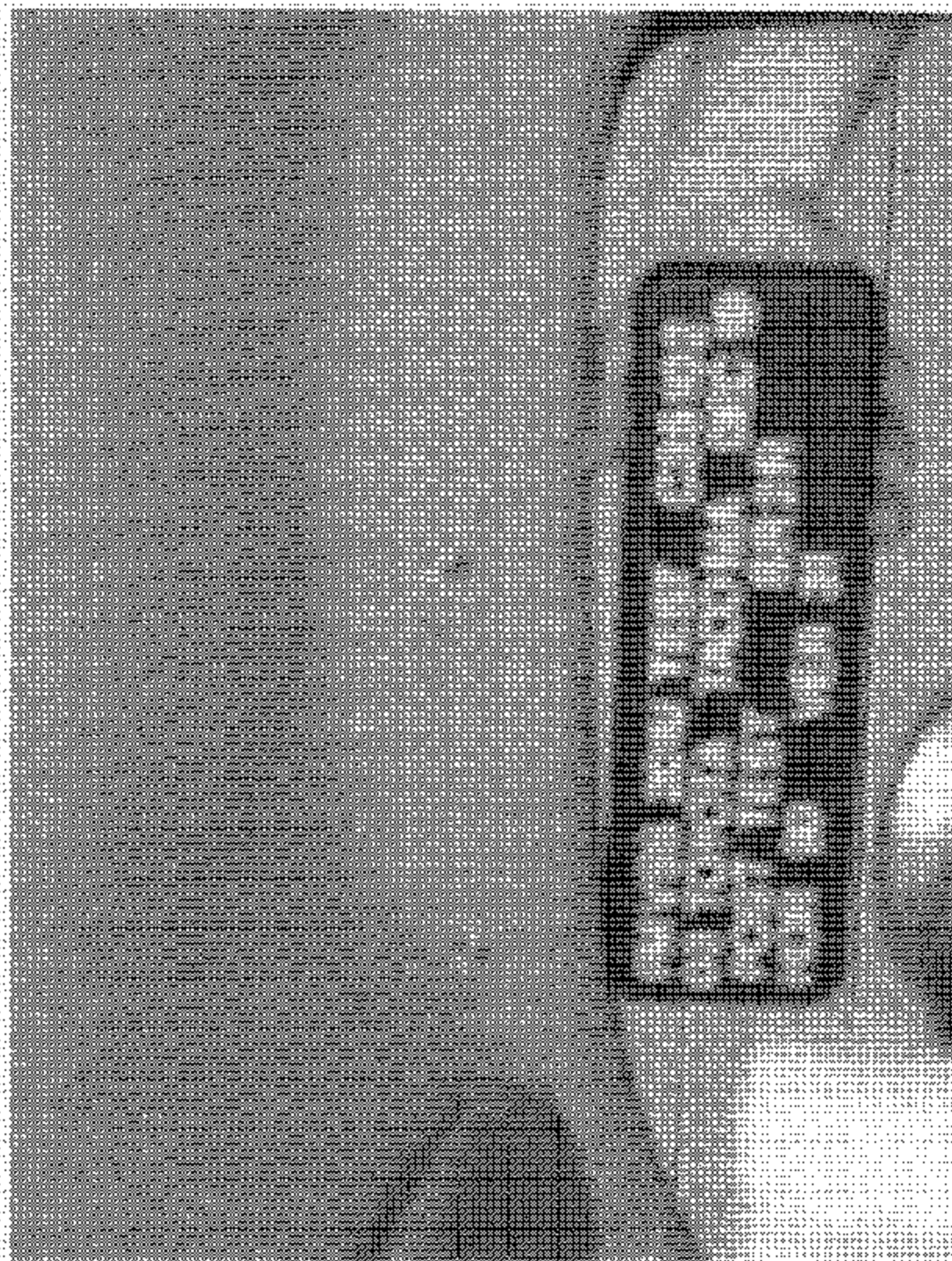


Figure 1. POST-1933 NARA

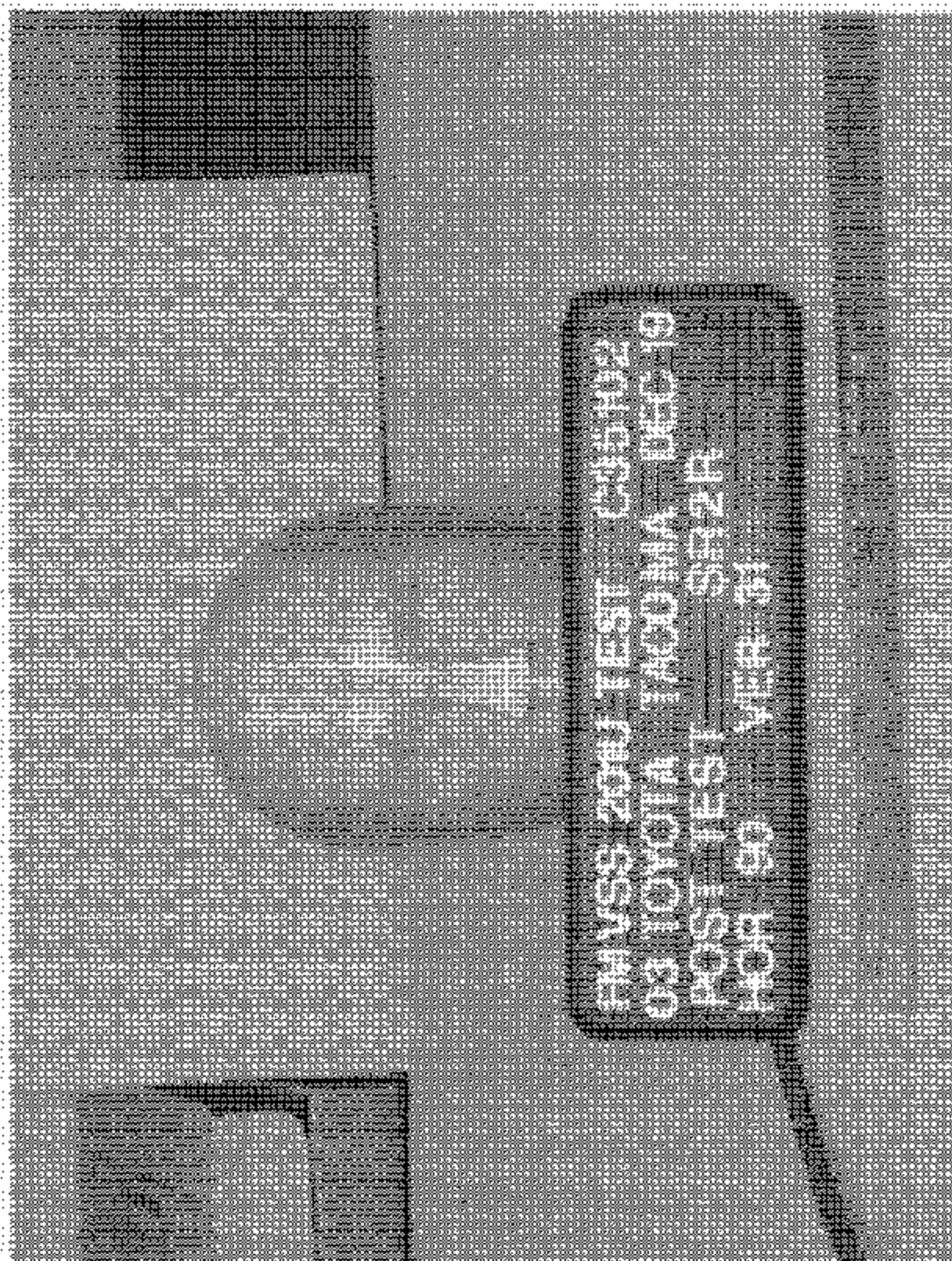


Figure 1. SR02 HEADFORM

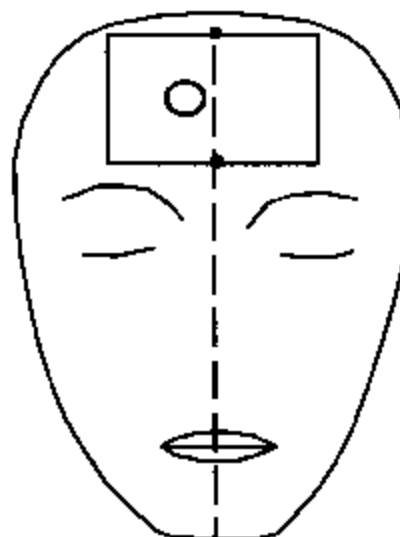
Year/Make/Model/Body Style: 2003 Toyota Tacoma Pick-up
 Vehicle Body Color: Gray VIN: 5TENL42N63Z157419
 Vehicle NHTSA No.: C35102 Month & Year of Manufacture: 09/02

Test Number: 6 Test Date: December 20, 2002
 Target Location: Driver Side A-Pillar Target Code: AP2
 Horizontal Impact Angle: 730 ° Vertical Impact Angle: 30 °
 Ambient Temperature: 22 °C Time of Impact: 9:32
 Headform Number: 1255

Impact Point:

Description:

Description: From lower midpoint				
On centerline	42	mm up		
On centerline	8	x	mm right	- mm left



Free Motion HIC: 472.0 HIC(d): 522.5
 Impact Velocity (kph): 23.64 HIC1: 1.3 msec HIC2: 6.3 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma C35102 - AP2

FMH Headform 1255

Location: AP2

Test Date: December 20, 2002

Work File: fmh

-----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 522.5

Lab Humidity: 24 %

HIC (36ms): 472.0

Velocity at Impact: 23.64 KPH

t1: 1.3 msec

t2: 6.3 msec

Free Flight Distance: 212.79 mm

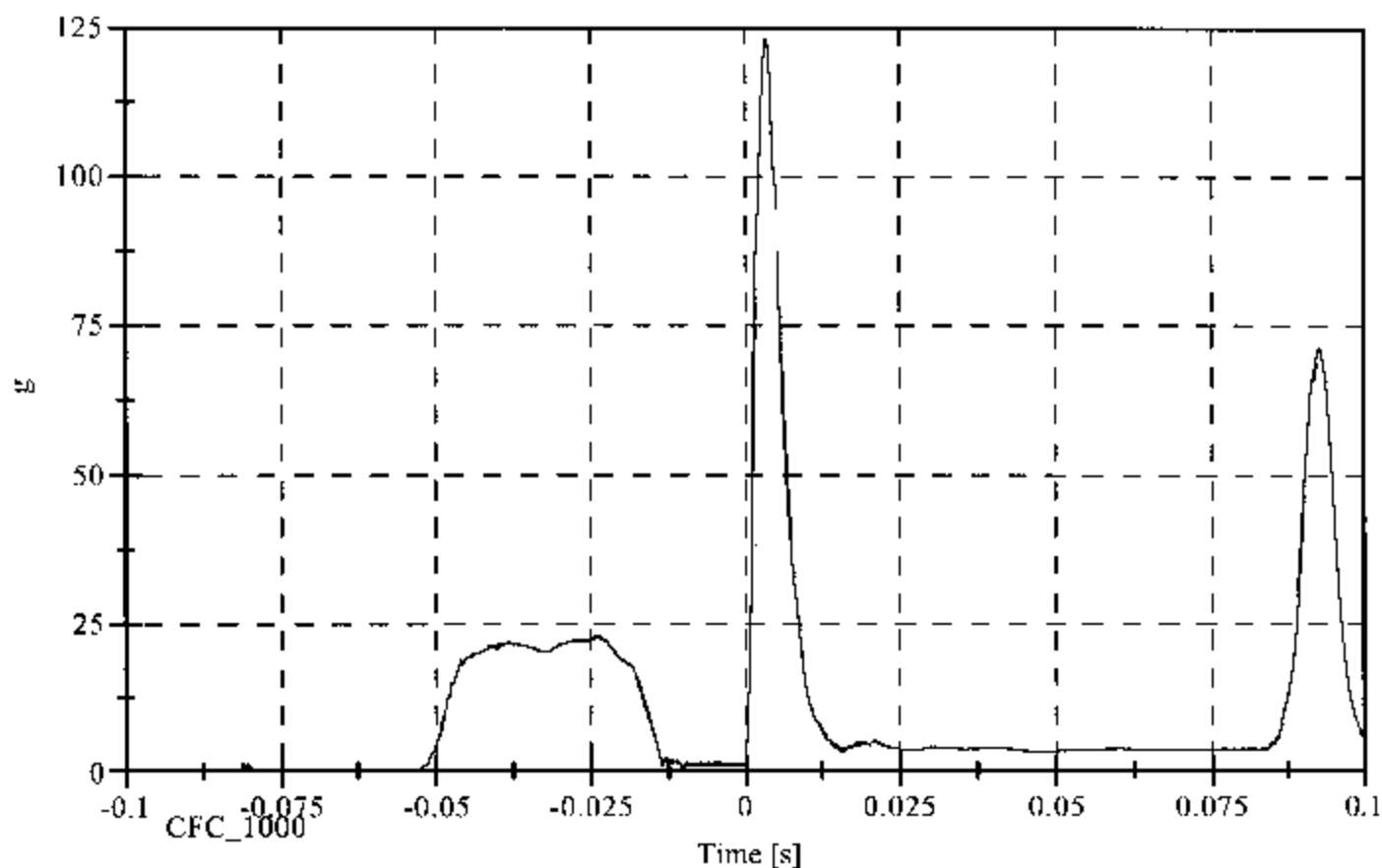
Duration: 5.1 msec

Average Acceleration: 10.6 g

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma
Headform Resultant

Max: 123.2 [g] at 0.003 [s]

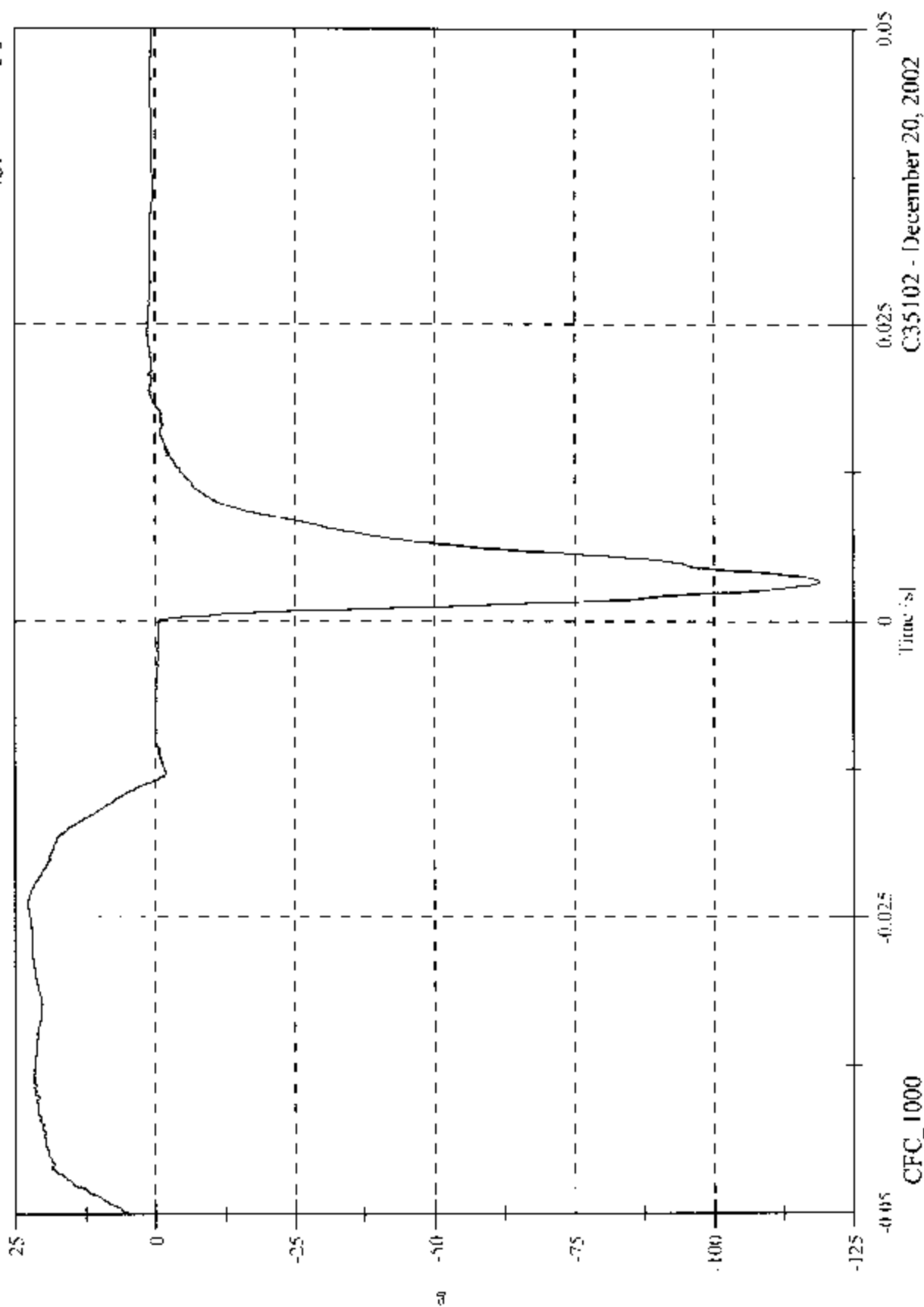
Min: 0.0 [g] at -0.094 [s]



FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform X Acceleration

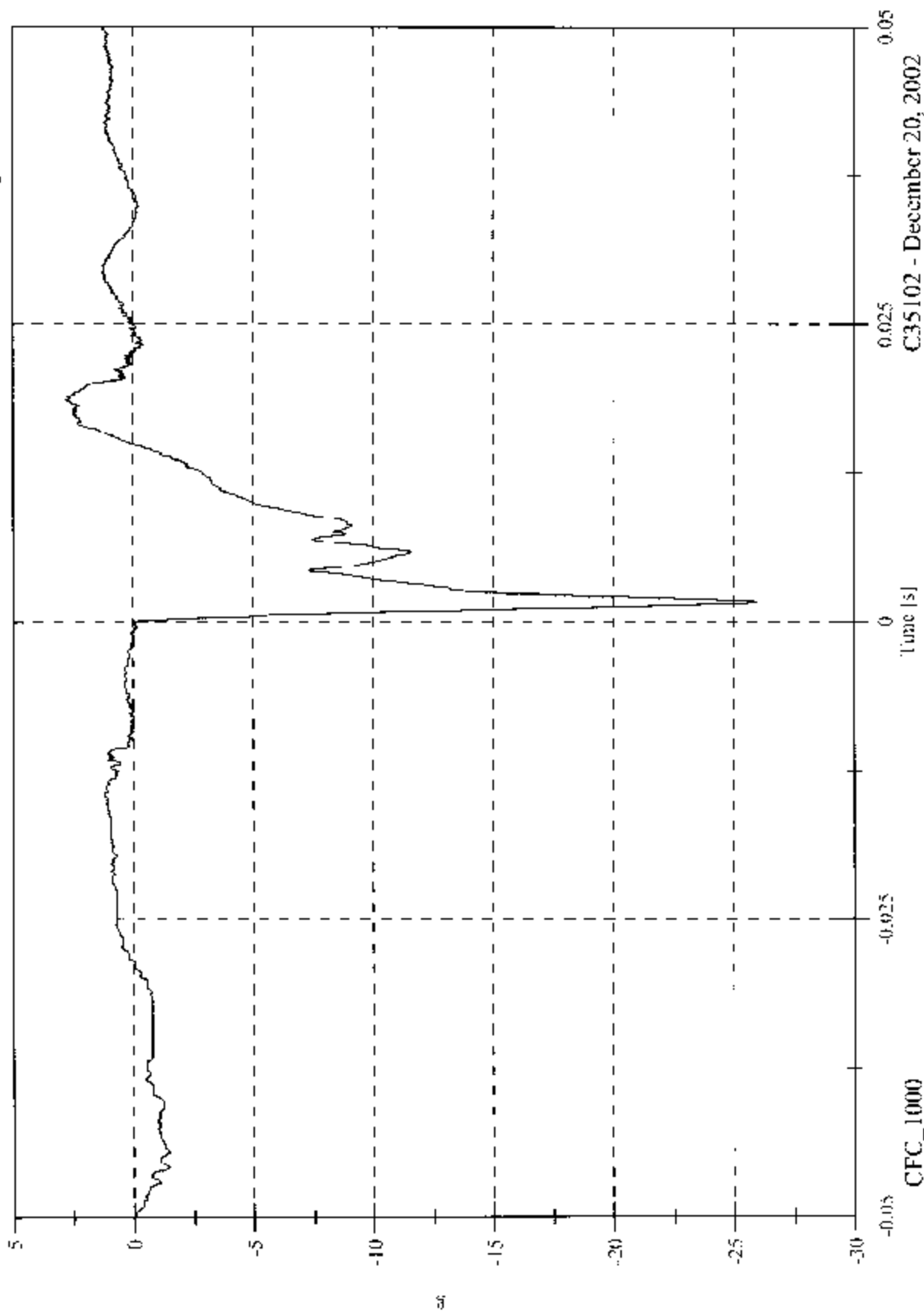
Max: 22.8 [g] at -0.024 [s]
Min: -119.0 [g] at 0.003 [s]



FMVSS 2010 IMPACT TEST - 2003 Toyota Tacoma

Headform Y Acceleration

Max: 2.8 [g] at 0.019 [s]
Min: -25.9 [g] at 0.002 [s]

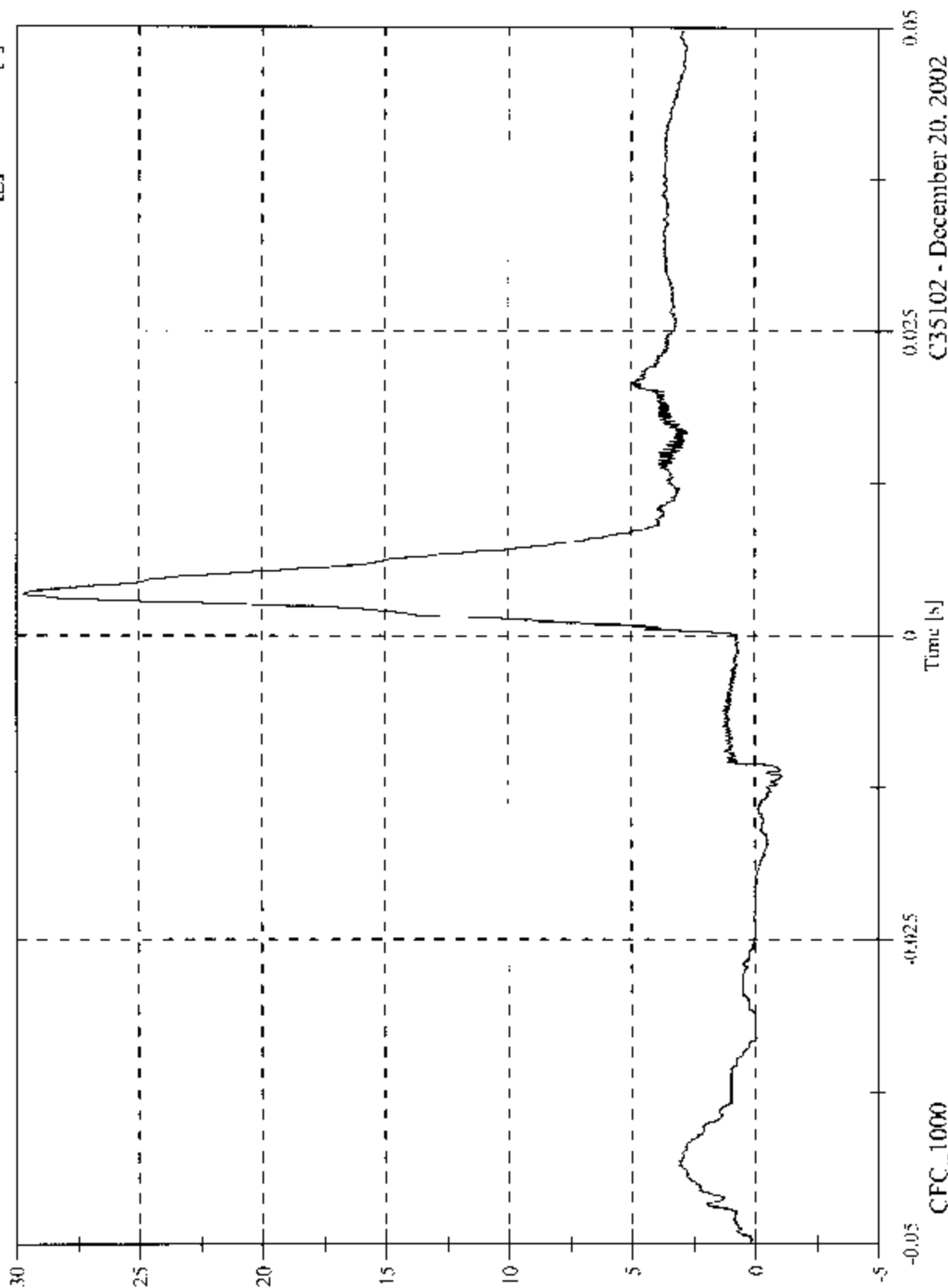


FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Leadform Z Acceleration

Max: 29.7 [g] at 0.003 [s]

Min: -1.1 [g] at -0.012 [s]

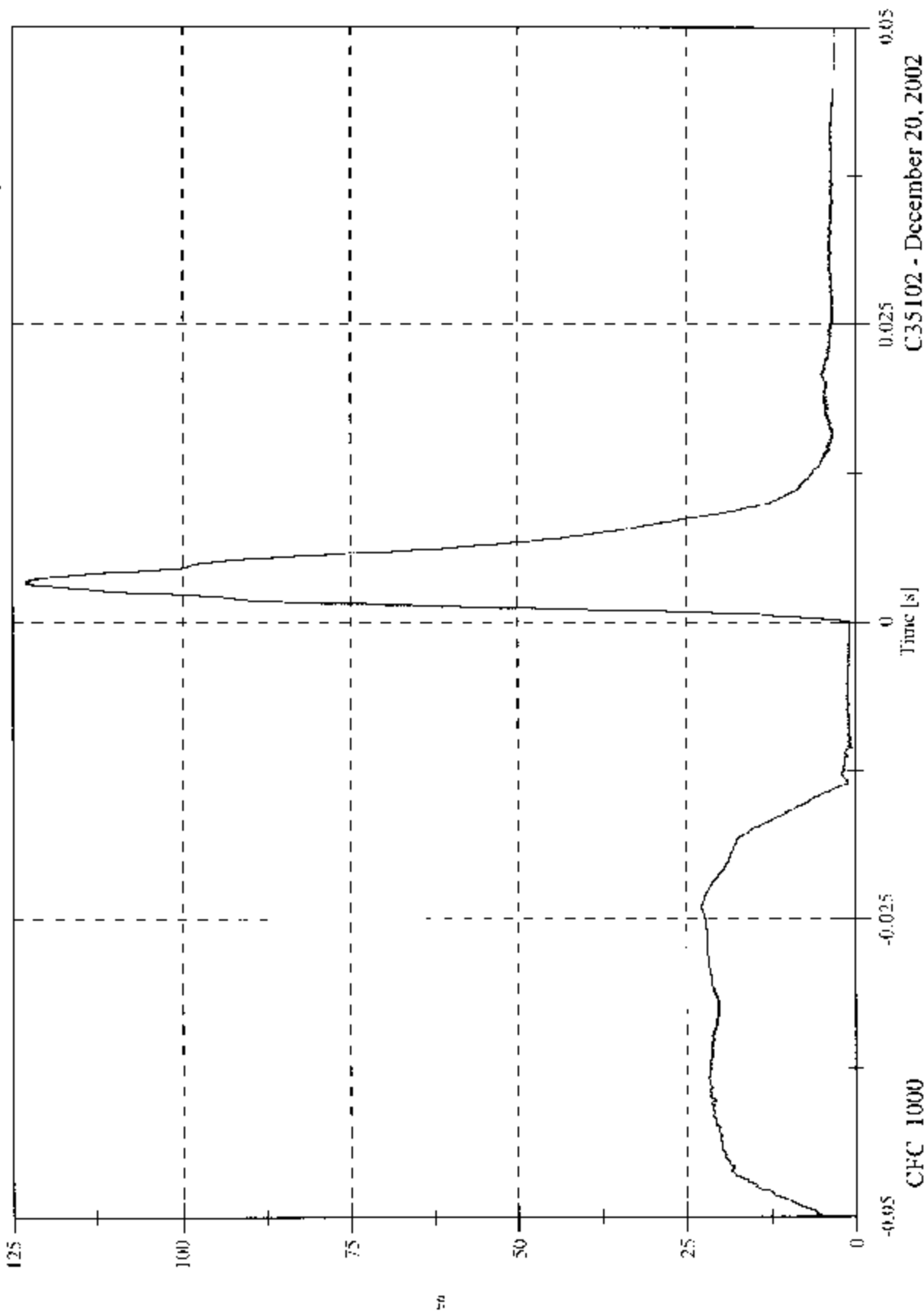


C35102 - December 20, 2002

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Max: 123.2 [g] at 0.003 [s]
Min: 0.6 [g] at -0.011 [s]

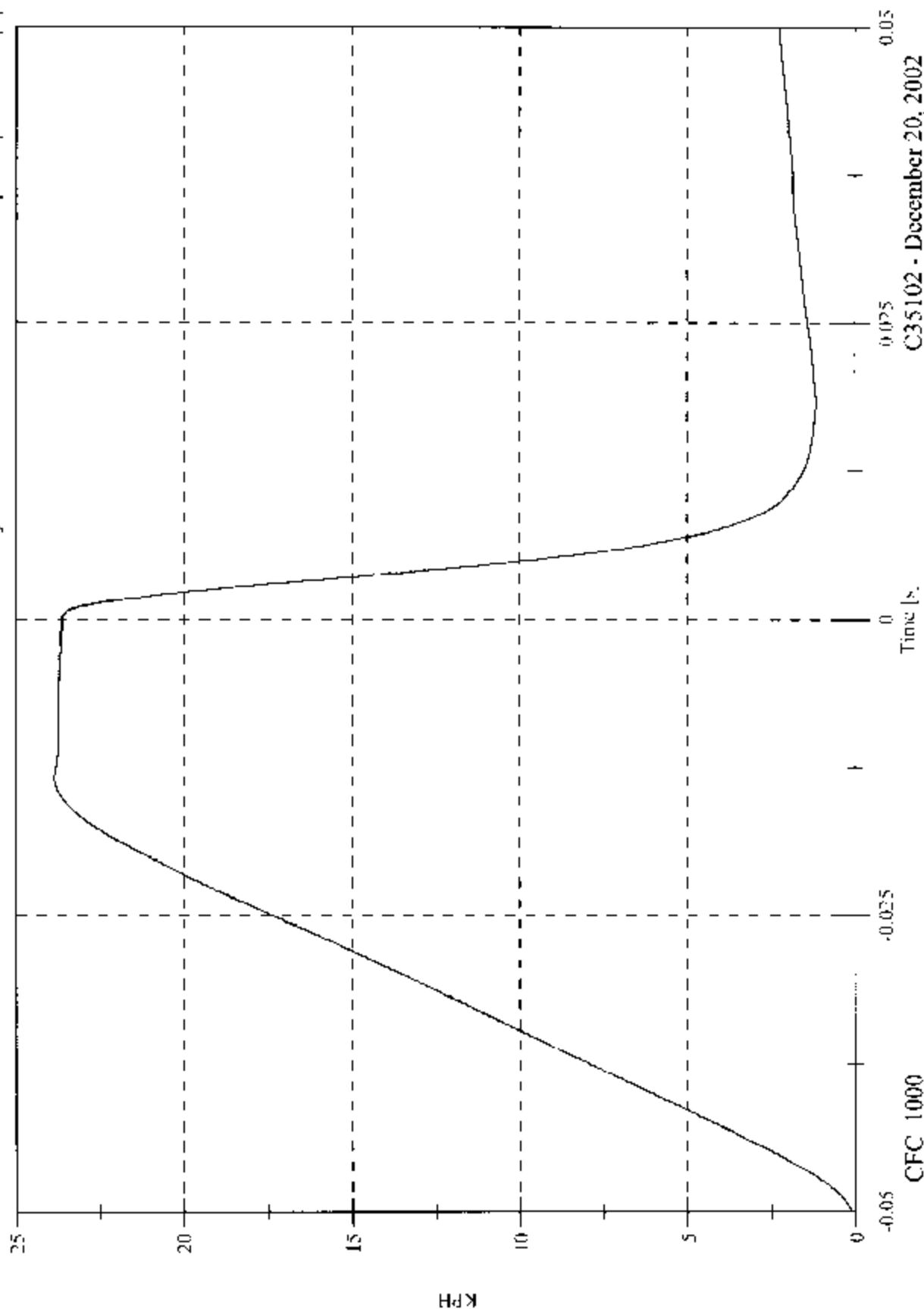
Headform Resultant



FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Max: 23.9 [KPH] at -0.013 [s]
 Min: 0.1 [KPH] at -0.050 [s]

Headform Velocity

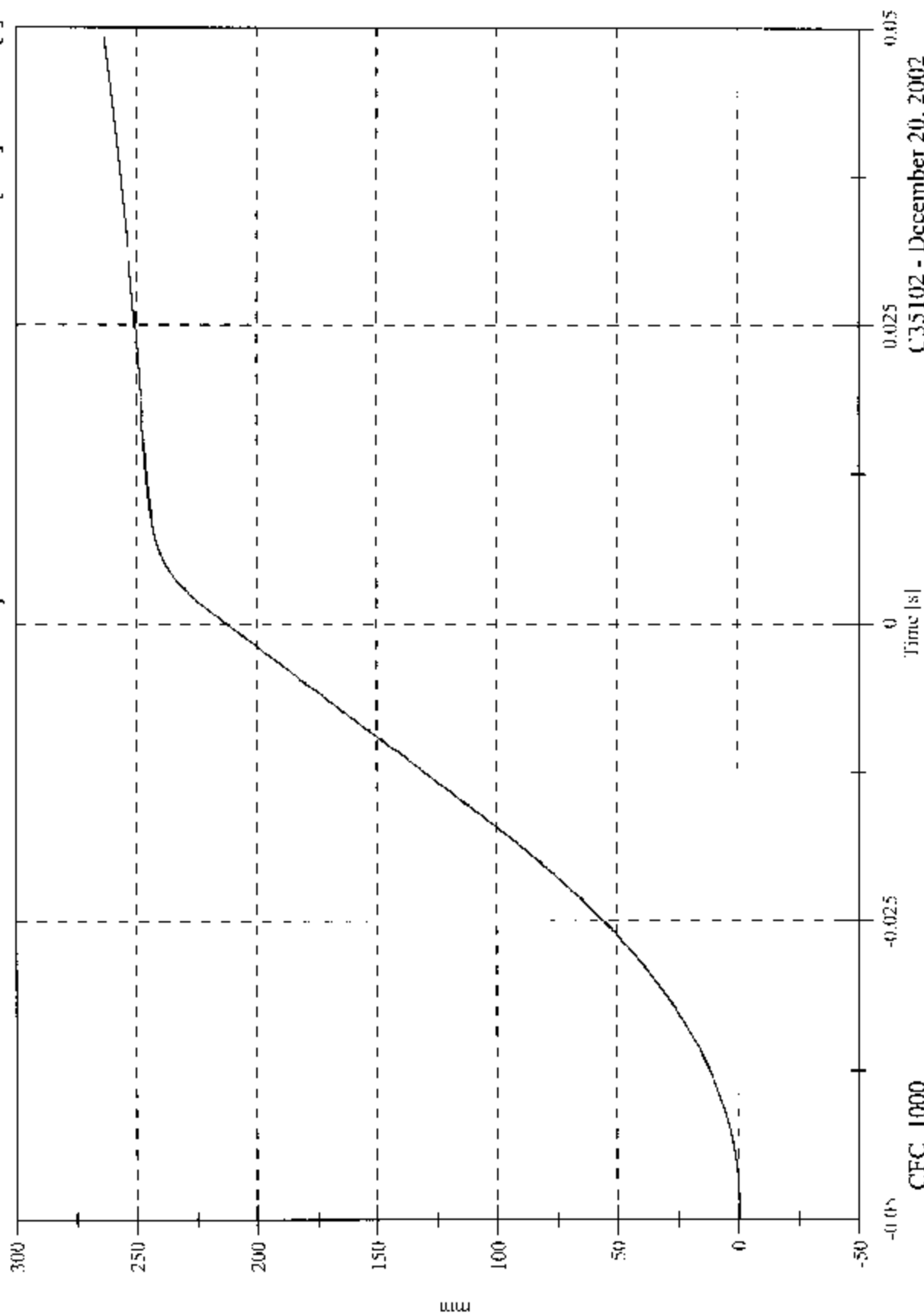


C35102 - December 20, 2002

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Displacement

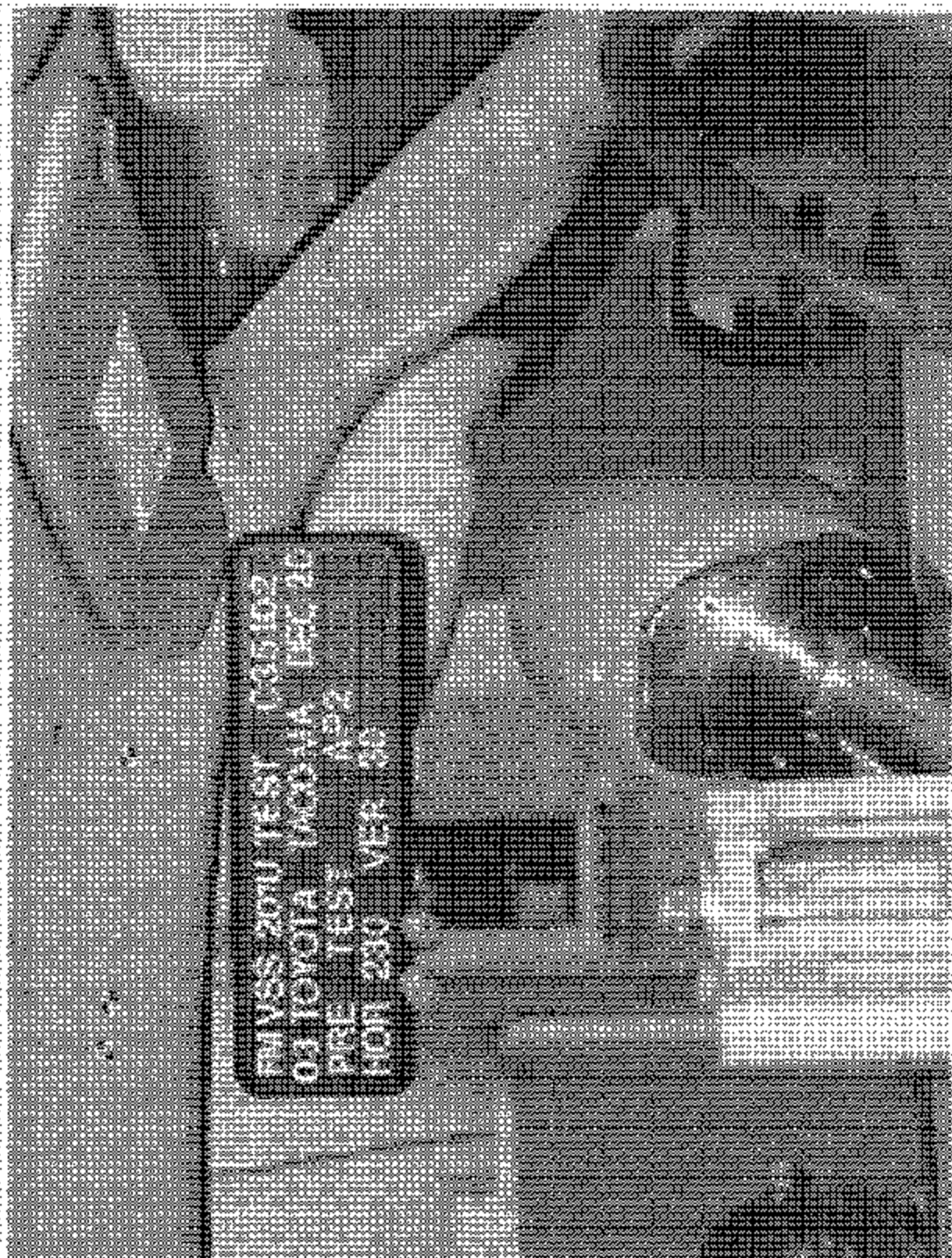
Max: 263.6 [mm] at 0.050 [s]
Min: -0.3 [mm] at -0.050 [s]



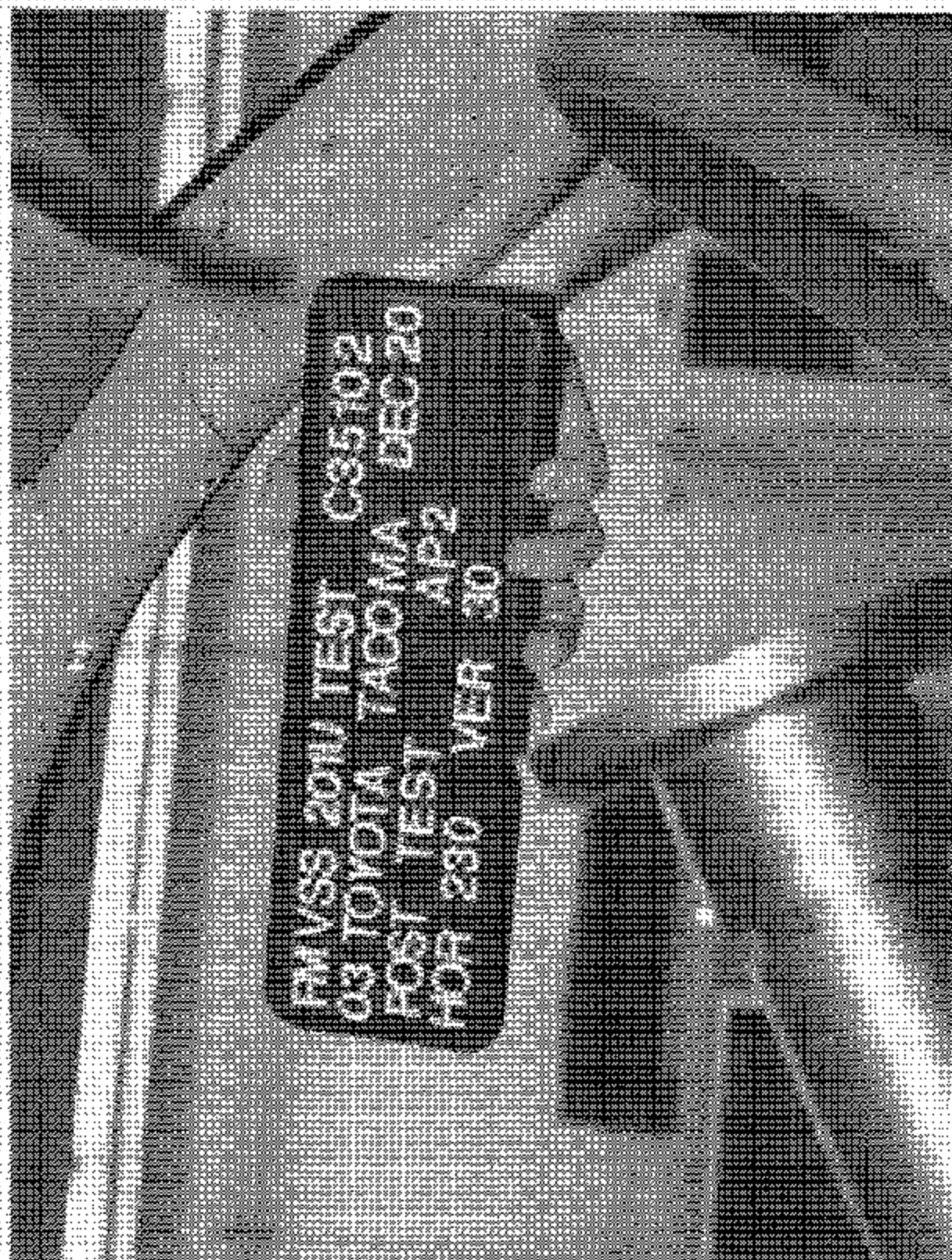
CFC_1000

Time [s]

C35102 - December 20, 2002



MIYSS 2010 TEST 035102



FMVSS 201W TEST C35102

HAUSS 20HU TEST C05102
02 HUYOIA TAOO NA DEC 20
POET TEST APR
HOH 280 VER 30

HAUSS 20HU TEST C05102

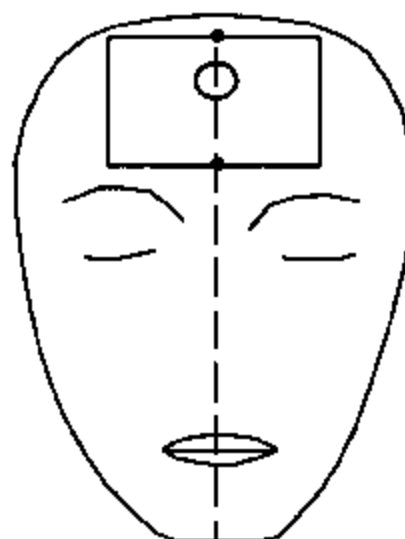
Year/Make/Model/Body Style: 2003 Toyota Tacoma Pick-up
 Vehicle Body Color: Gray VIN: 5TBNL42N63Z157419
 Vehicle NHTSA No.: C35102 Month & Year of Manufacture: 09/02

Test Number: 7 Test Date: December 20, 2002
 Target Location: Driver Side Front Header Target Code: FH1
 Horizontal Impact Angle: 180° Vertical Impact Angle: 50°
 Ambient Temperature: 21°C Time of Impact: 10.15
 Headform Number: 0642

Impact Point:

Description:

Description: From lower midpoint				
On centerline	44	mm up		
On centerline	0	-	mm right	- mm left



Free Motion HIC: 646.5 HIC(d): 654.1
 Impact Velocity (kph): 23.63 HIC(T) 2.5 msec: 10.3 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma C35102 - FH1

FMH Headform 0642

Location: FH1

Test Date: December 20, 2002

Work File: fmh

-----TEST RESULTS-----

Lab Temperature: 21 C

HICd: 654.1

Lab Humidity: 23 %

HIC (36ms): 646.5

Velocity at Impact: 23.63 KPH

t1: 2.5 msec

t2: 10.3 msec

Free Flight Distance: 220.86 mm

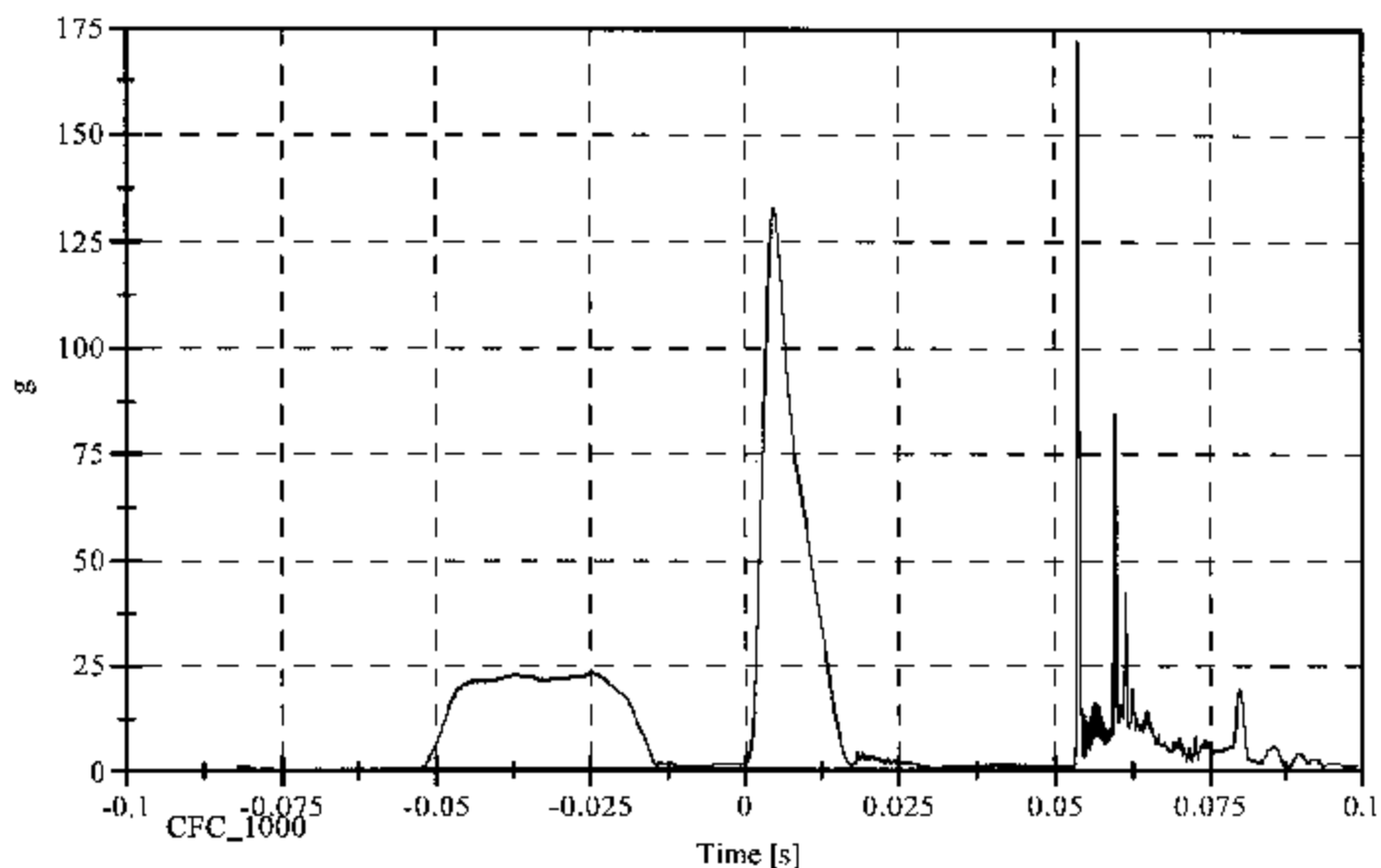
Duration: 7.7 msec

Average Acceleration: 10.4 g

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma
Headform Resultant

Max: 172.2 [g] at 0.054 [s]

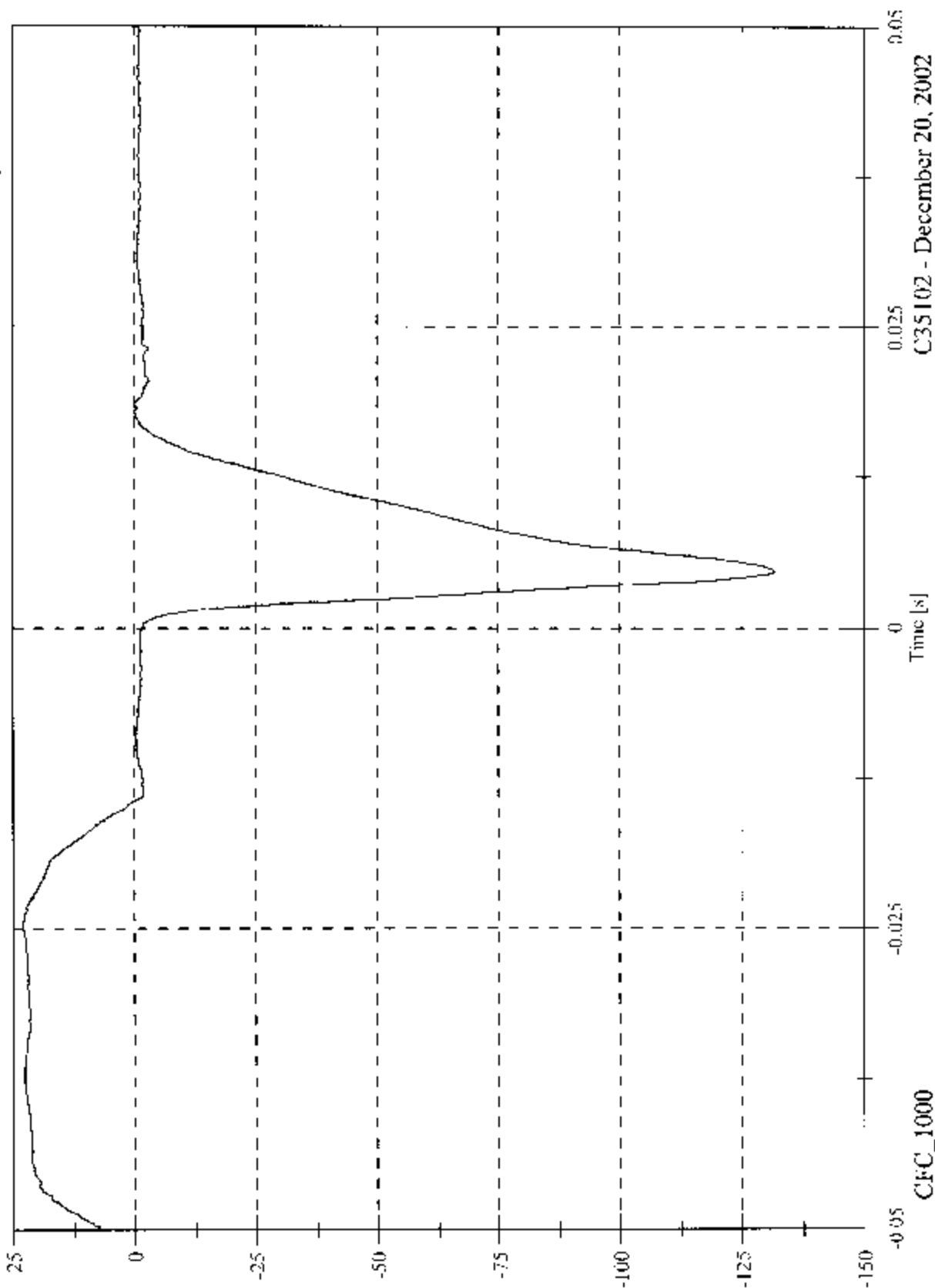
Min: 0.0 [g] at -0.096 [s]



FMVSS 201C IMPACT TEST - 2003 Toyota Tacoma

Headform X Acceleration

Max: 23.1 [g] at -0.025 [s]
Min: -131.6 [g] at 0.005 [s]



CFC_1000

Time [s]

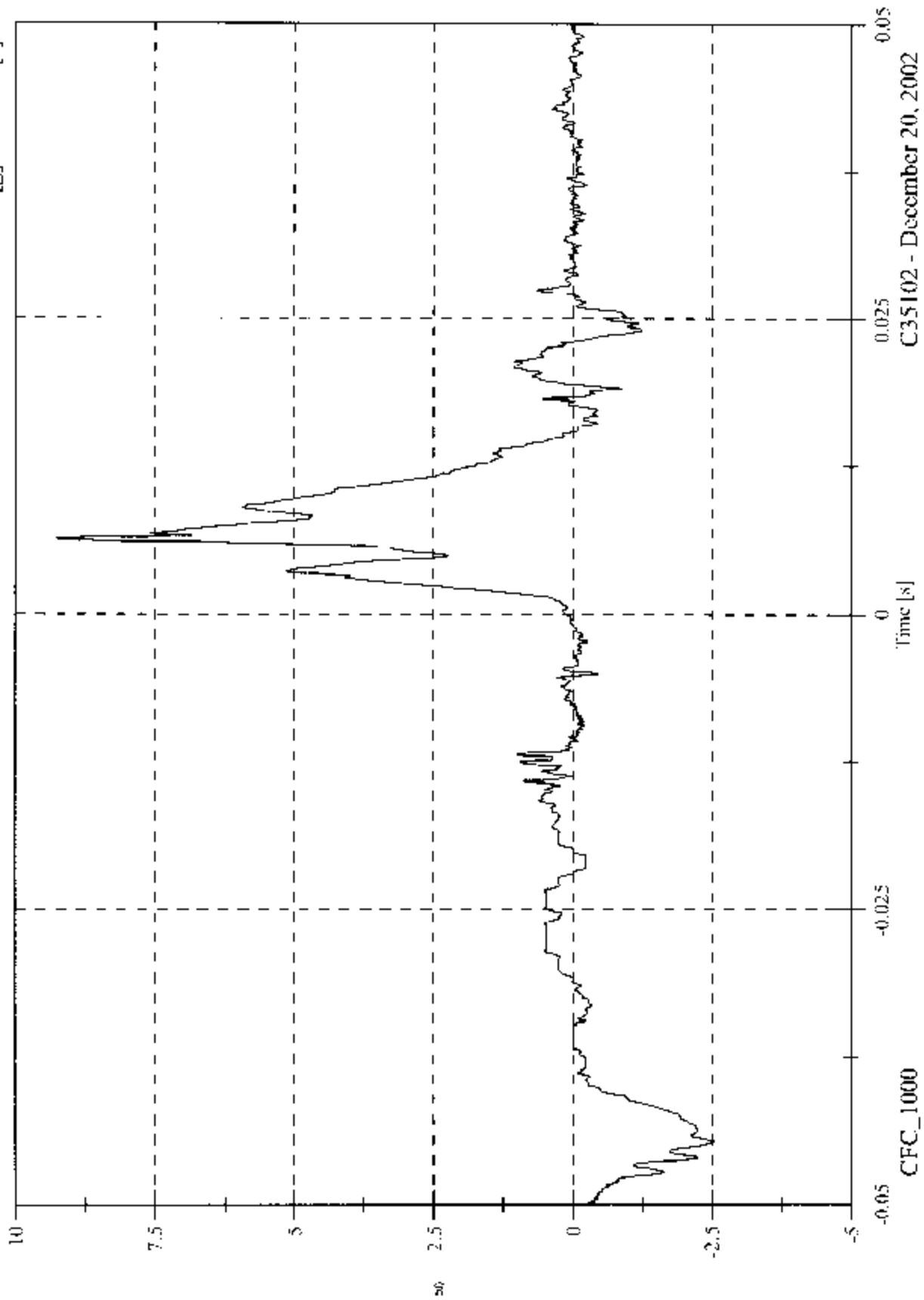
C35102 - December 20, 2002

IMVSS 201C IMPACT TEST - 2003 Toyota Tacoma

I leadform Y Acceleration

Max: 9.3 [g] at 0.006 [s]

Min: -2.5 [g] at -0.045 [s]



CFC_1000

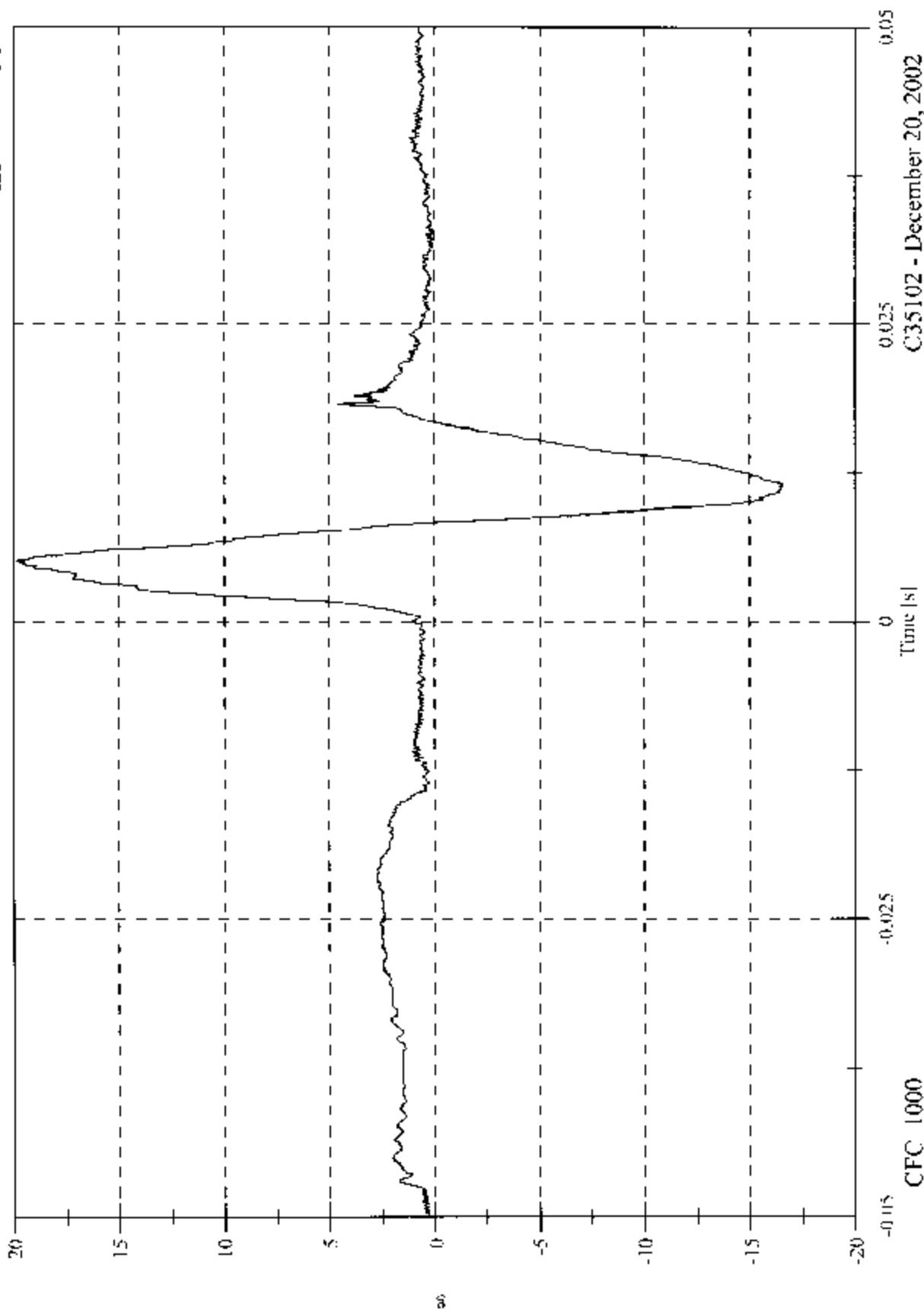
Time [s]

C35102 - December 20, 2002

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Z Acceleration

Max: 19.9 [g] at 0.005 [s]
Min: -16.6 [g] at 0.012 [s]



CFC_1000

-0.025

0.025

0.05

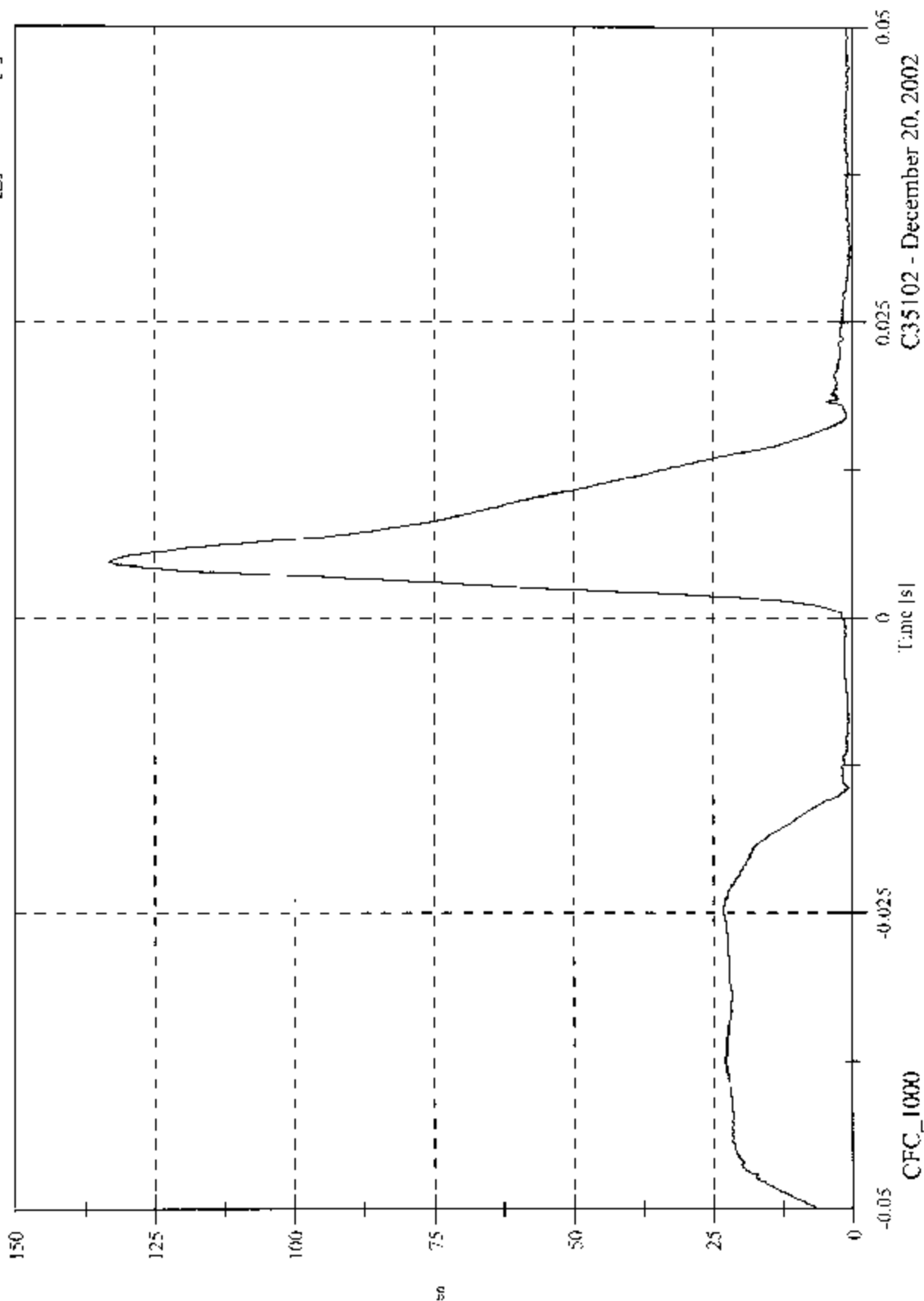
Time [s]

C35102 - December 20, 2002

FMVSS 201C IMPACT TEST - 2003 Toyota Tacoma

Max: 133.0 [g] at 0.005 [s]
 Min: 0.4 [g] at 0.031 [s]

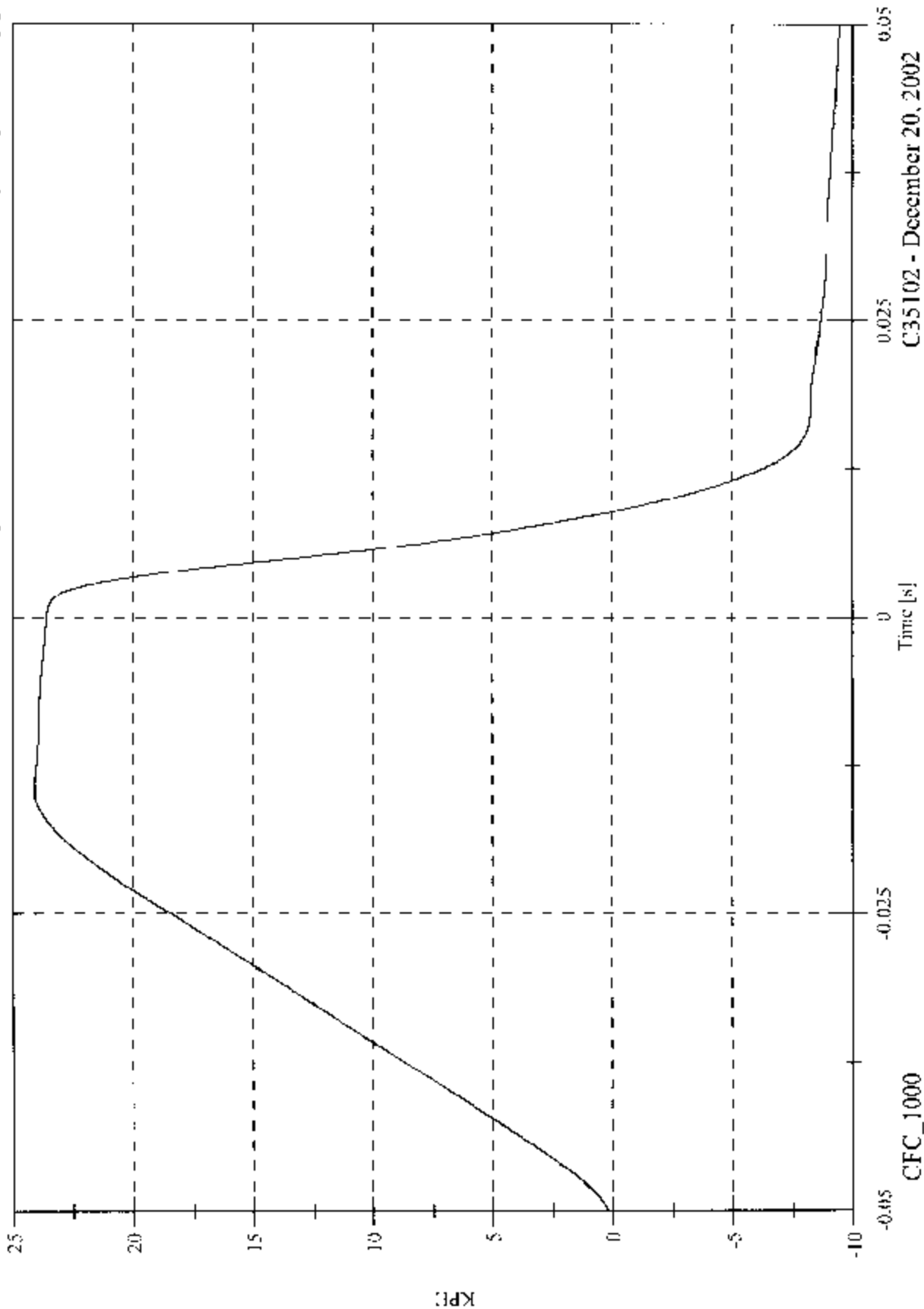
Headform Resultant



FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Max: 24.1 [KPH] at -0.014 [s]
 Min: -9.4 [KPH] at 0.050 [s]

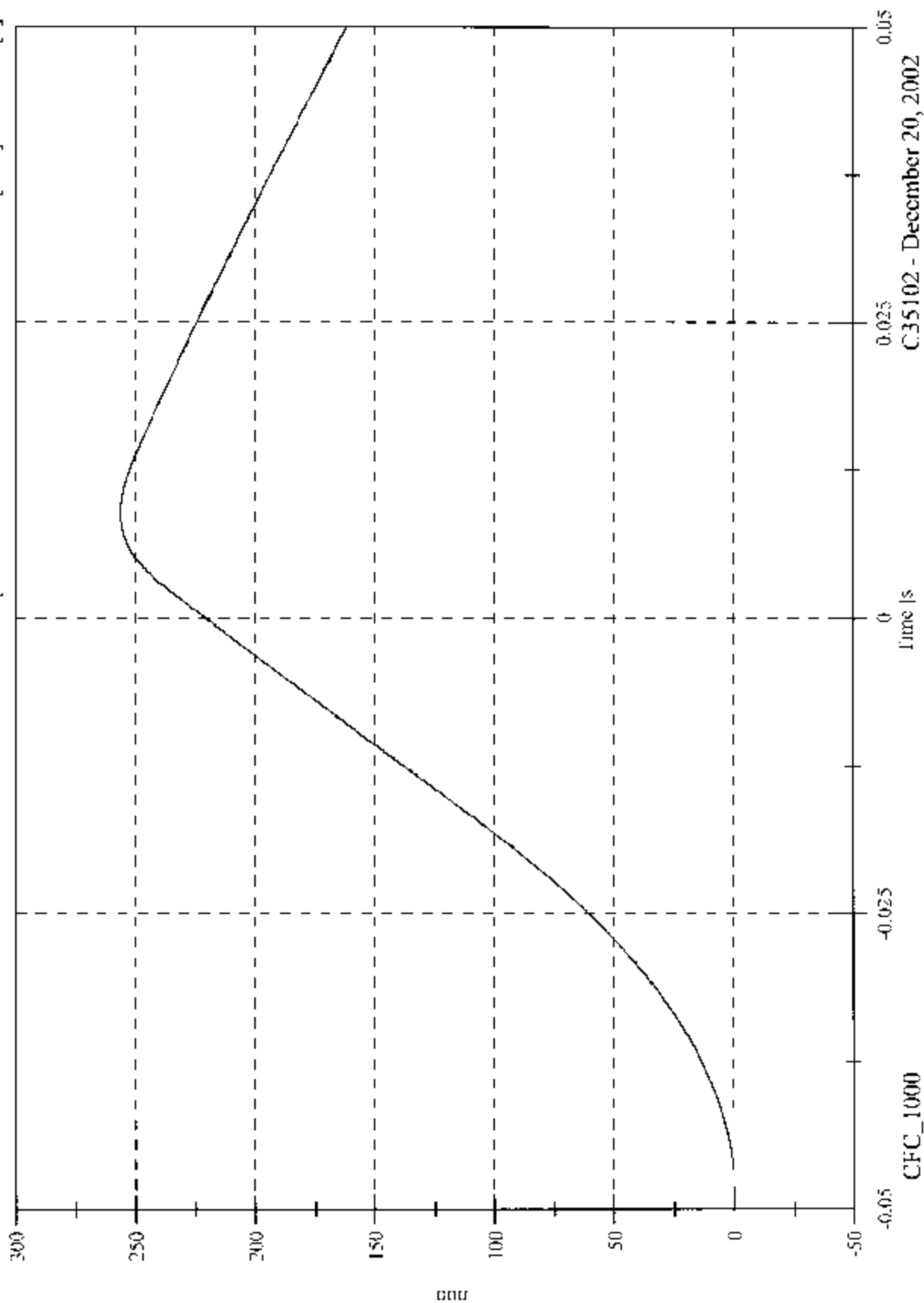
Headform Velocity



FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Max: 256.1 [mm] at 0.009 [s]
Min: -0.3 [mm] at -0.050 [s]

Headform Displacement



CFC_1000

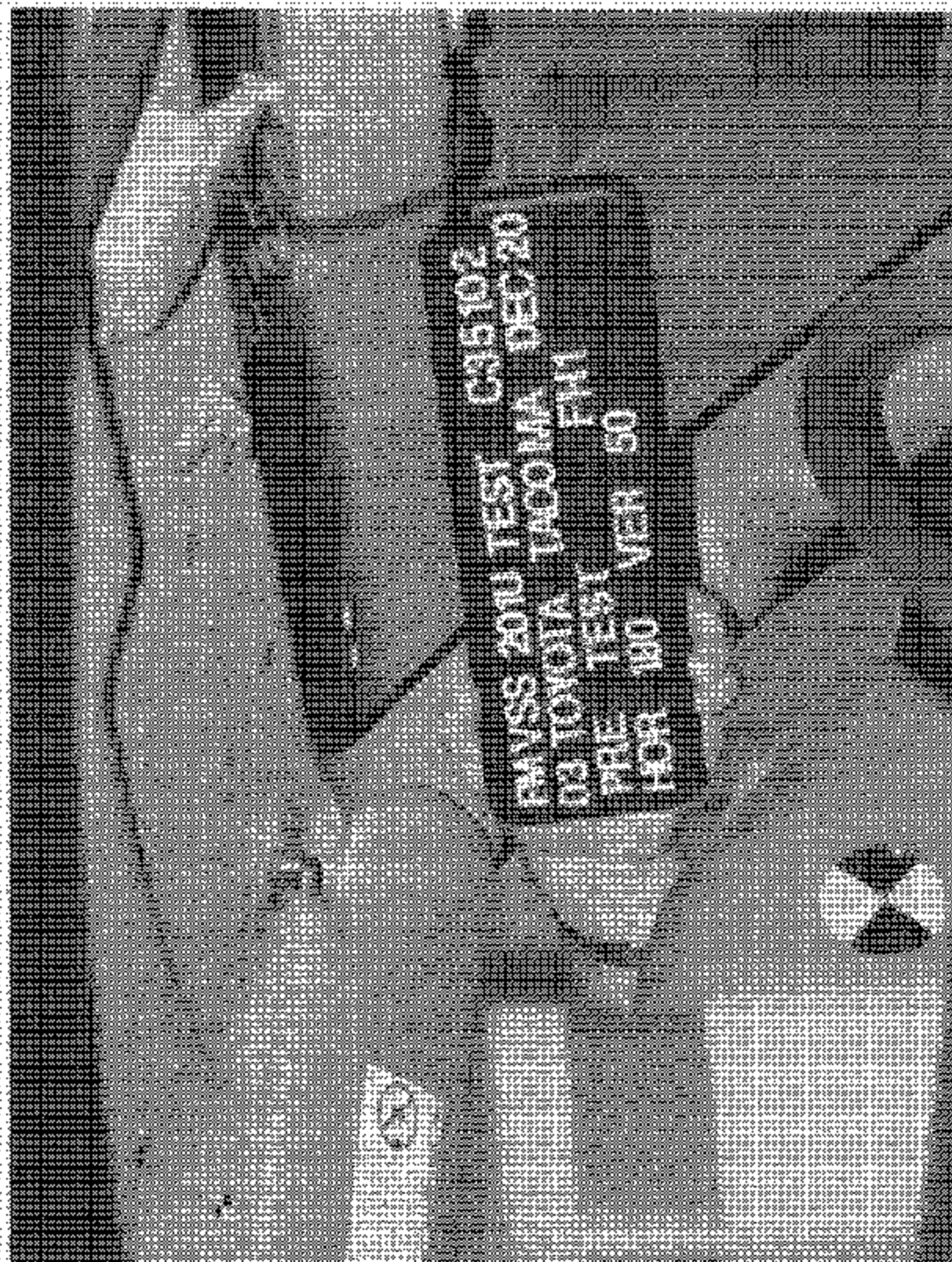
-0.025

0

0.025

0.05

C35102 - December 20, 2002



8653-EMVSS-07

WVSS 201U TEST C35102
J3 TOYOTA TACOMA DEC 20
PROG1 TEST FH1
MOD 180 VER 50

Figure 1003 (003) 1003 1003

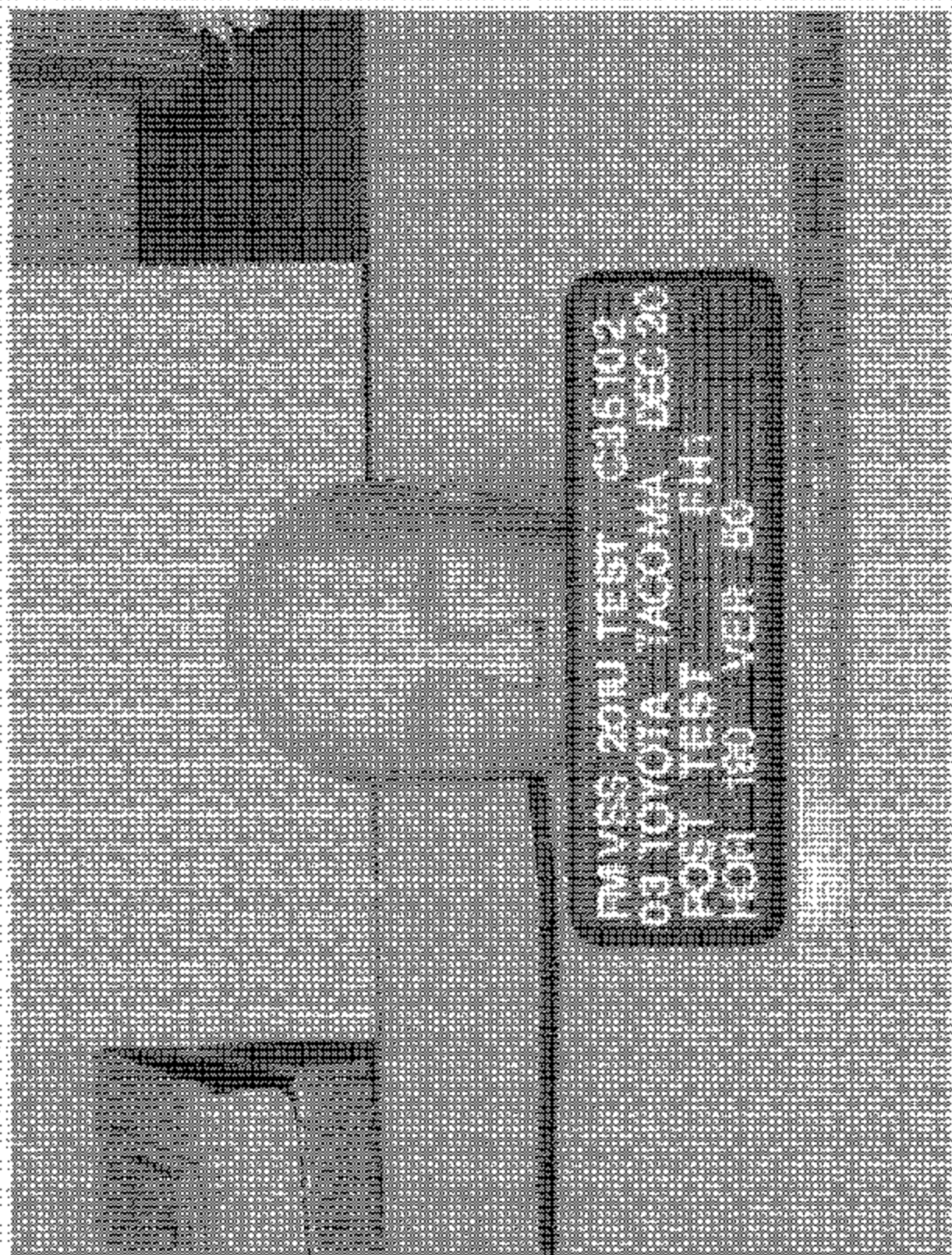


FIGURE 1. IDENTIFICATION TAG

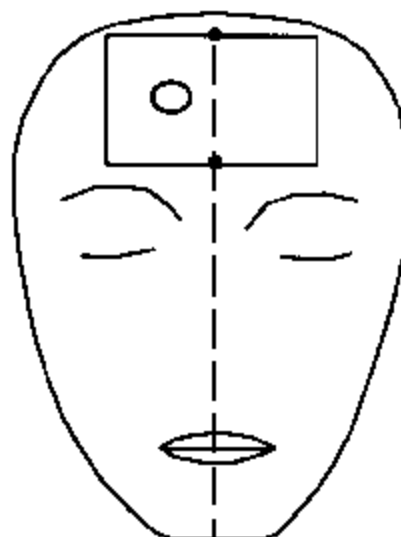
Year/Make/Model/Body Style: 2003 Toyota Tacoma Pick-up
 Vehicle Body Color: Gray VIN: 5TENL42N83Z157419
 Vehicle NHTSA No.: C35102 Month & Year of Manufacture: 09/02

Test Number: 8 Test Date: December 20, 2002
 Target Location: Driver Side Side Rail Target Code: SR1
 Horizontal Impact Angle: 270 ° Vertical Impact Angle: 25 °
 Ambient Temperature: 20.5 °C Time of Impact: 10:56
 Headform Number: 0355

Impact Point:

Description:

Description: From lower midpoint:				
On centerline	35	mm up		
On centerline	8	x	mm. right	- mm. left



Free Motion HIC: 311.5 HIC(d): 401.4
 Impact Velocity (kph): 23.39 HIC1: 1.9 msec HIC2: 9.9 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma C35102 - SR1

FMH Headform 0355

Location: SR1

Test Date: December 20, 2002

Work File: fmh

-----TEST RESULTS-----

Lab Temperature: 20.5 C

HICd: 401.4

Lab Humidity: 22 %

HIC (36ms): 311.5

Velocity at Impact: 23.39 KPH

t1: 1.9 msec

t2: 9.9 msec

Free Flight Distance: 216.85 mm

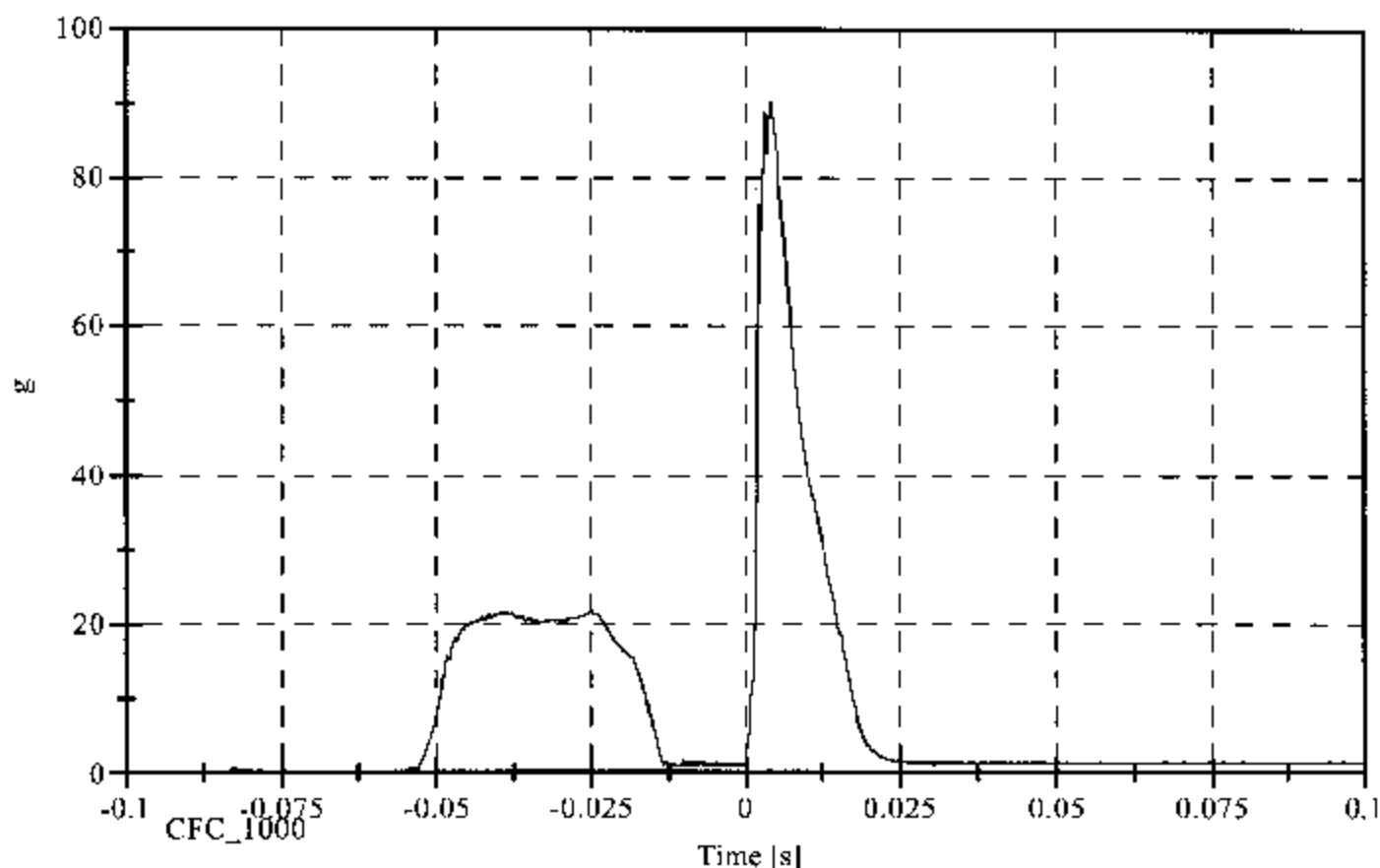
Duration: 8.1 msec

Average Acceleration: 8.0 g

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma
Headform Resultant

Max: 90.3 [g] at 0.004 [s]

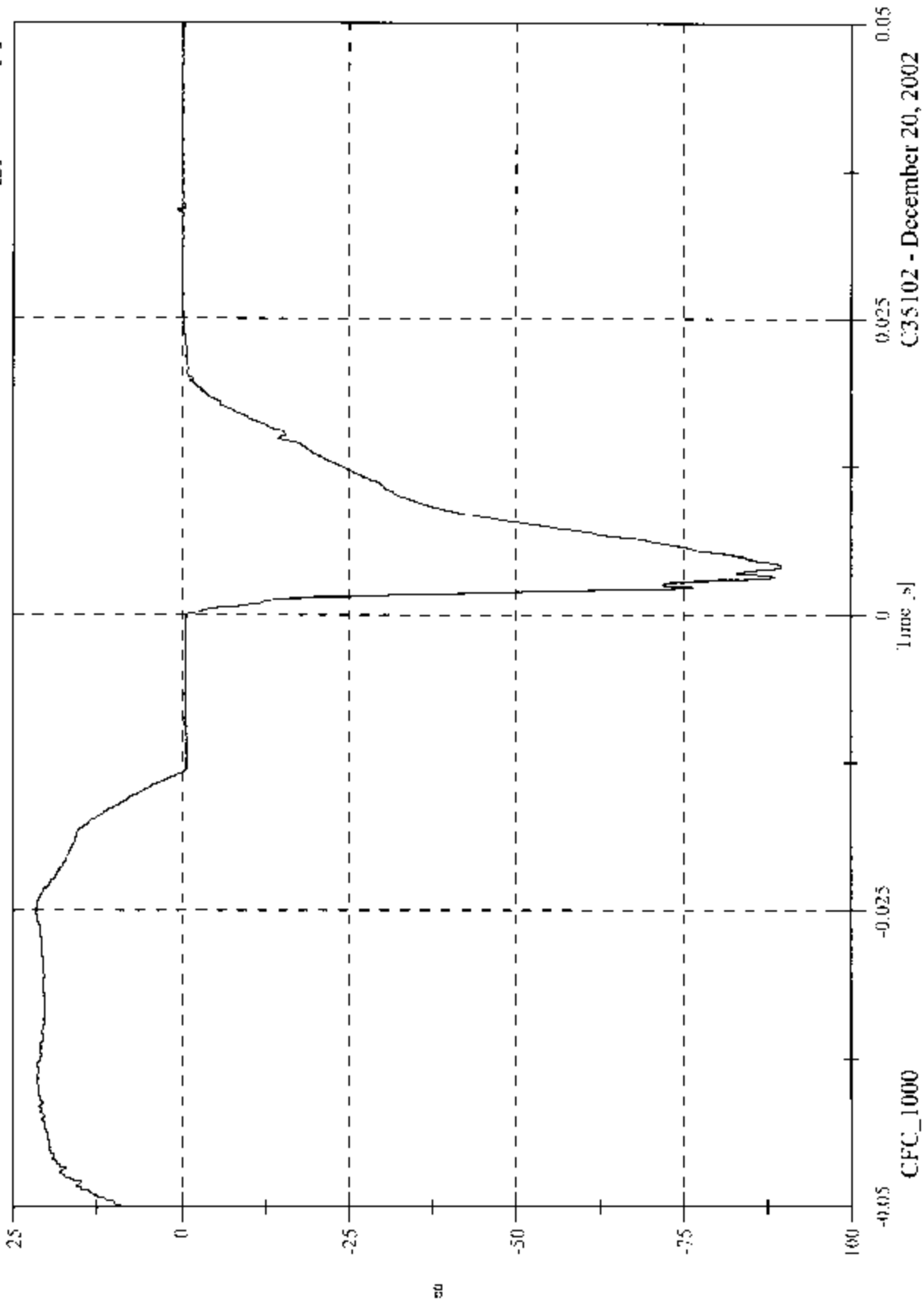
Min: 0.0 [g] at -0.071 [s]



FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform X Acceleration

Max: 21.6 [g] at -0.025 [s]
Min: -89.6 [g] at 0.004 [s]



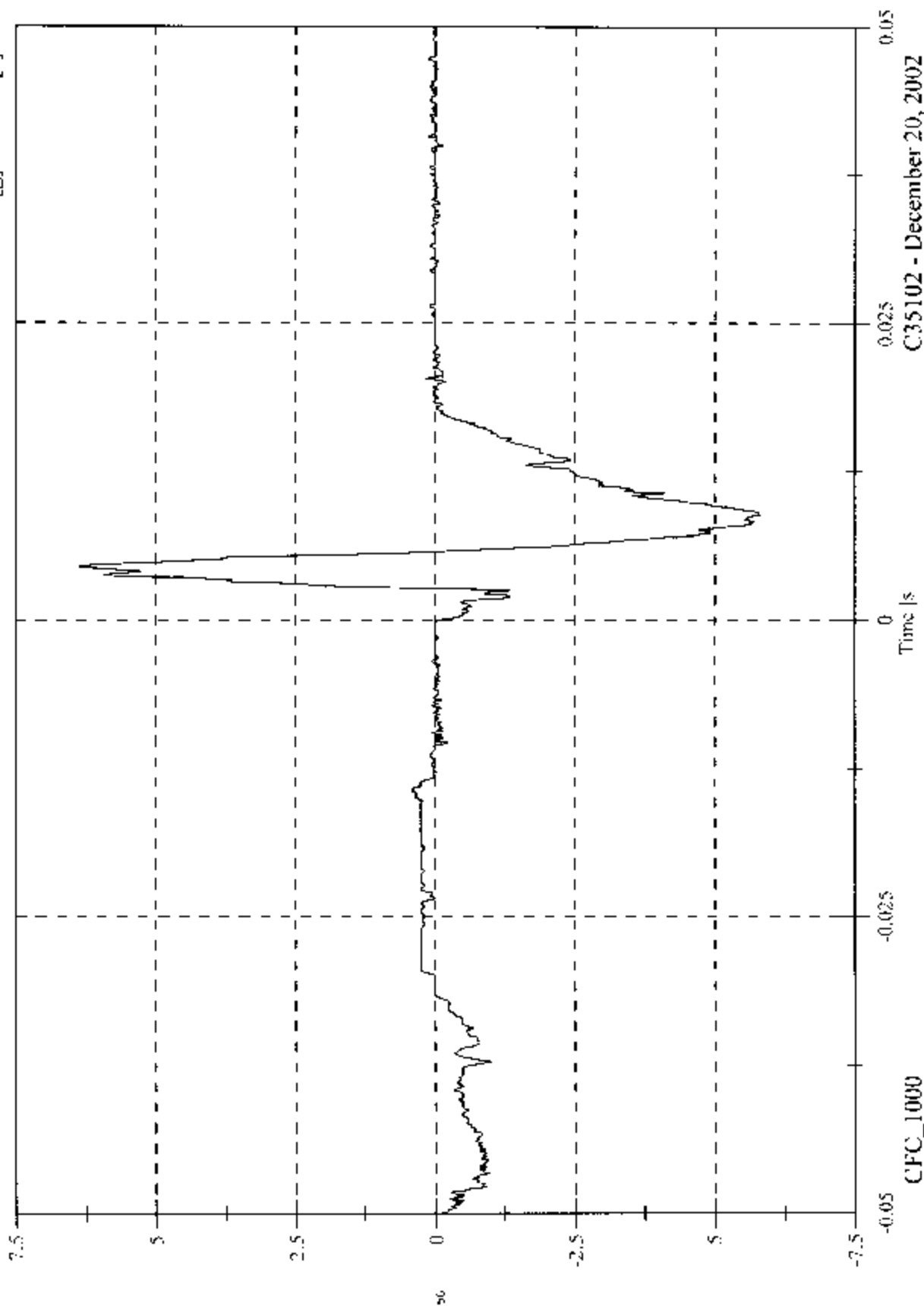
C35102 SR1 IMPACT PLOT #1

FMVSS 201C IMPACT TEST - 2003 Toyota Tacoma

Headform Y Acceleration

Max: 6.4 [g] at 0.005 [s]

Min: -5.8 [g] at 0.009 [s]



CPC_1000

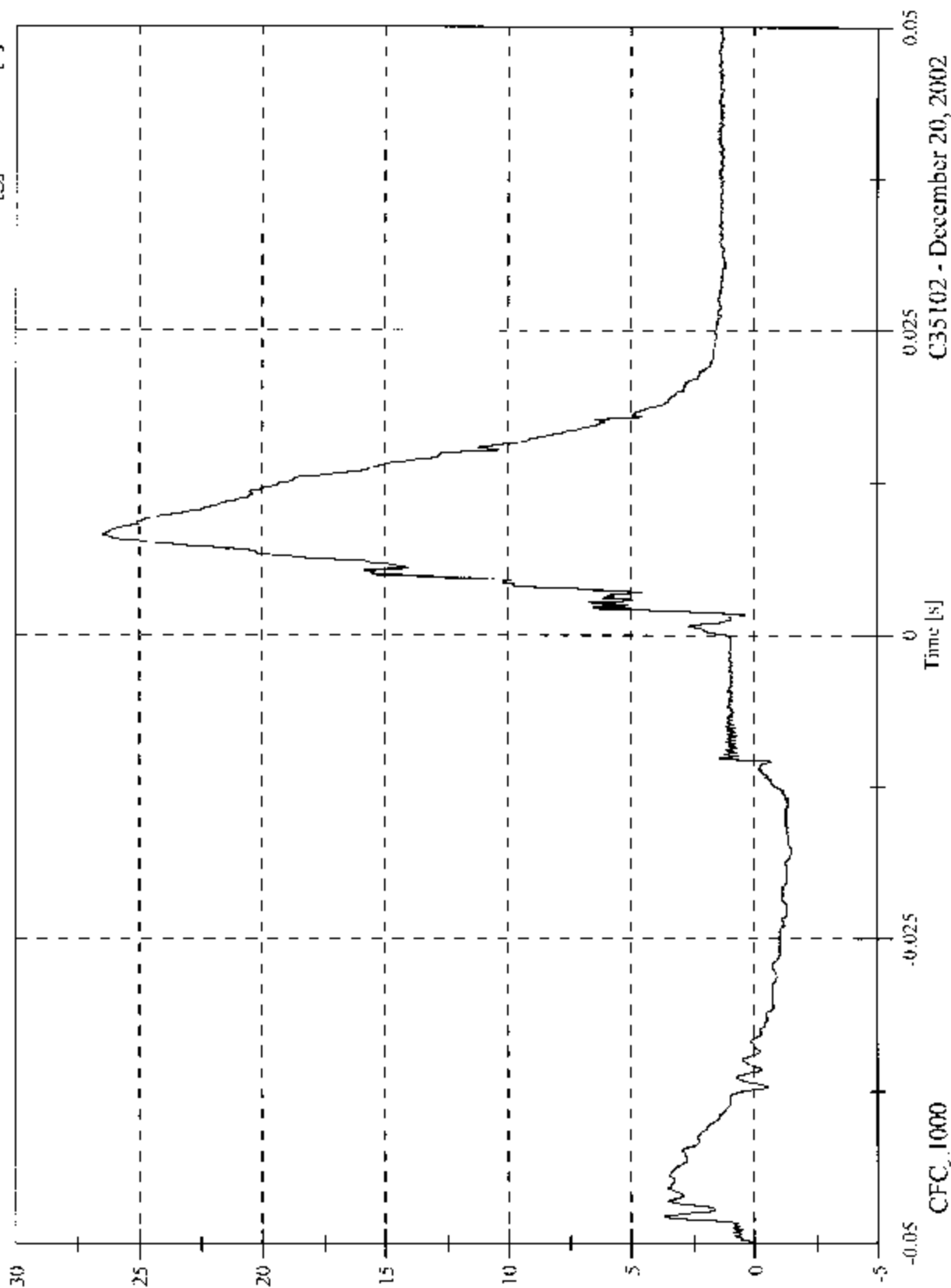
Time [s]

C35102 - December 20, 2002

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Z Acceleration

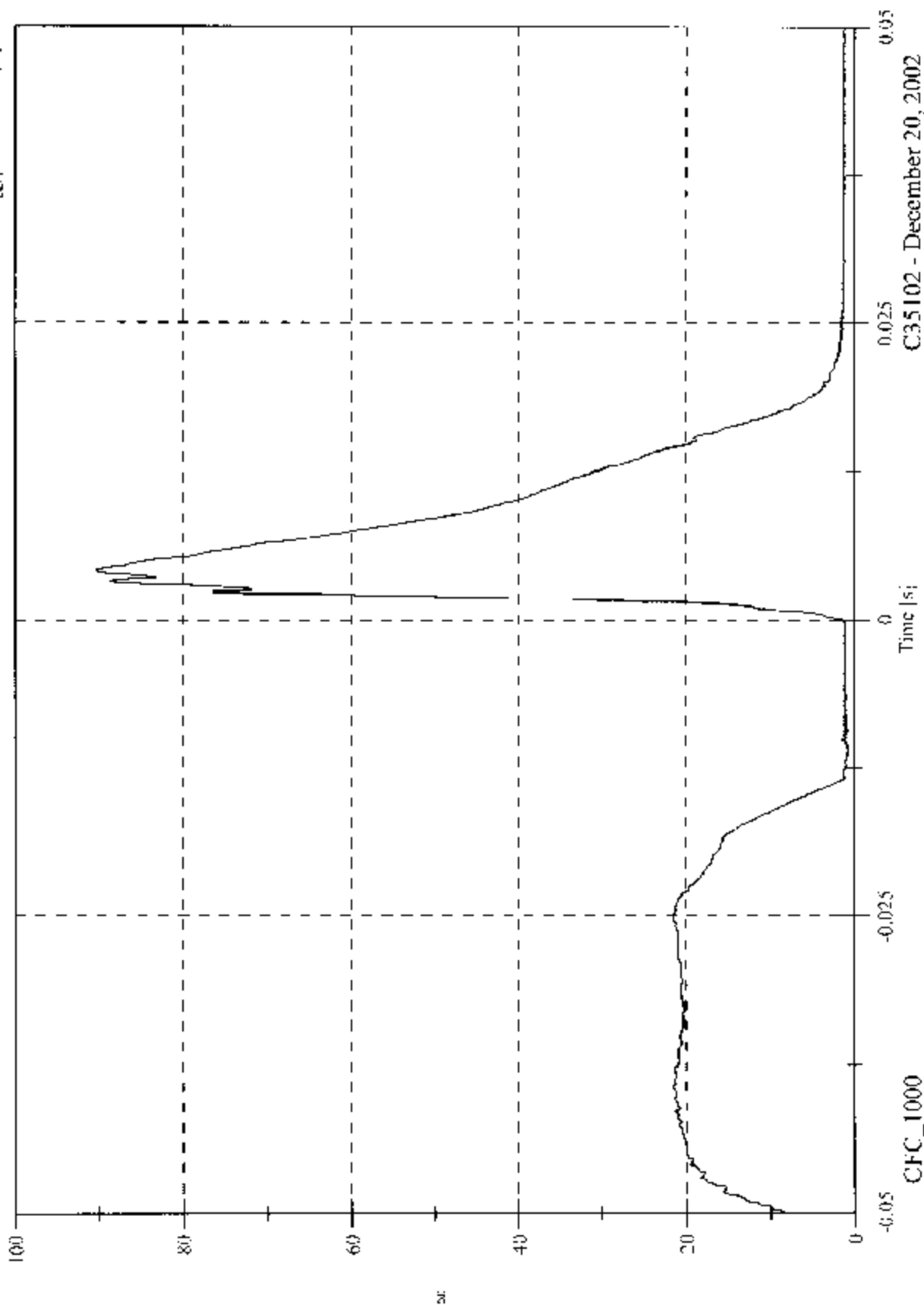
Max: 26.5 [g] at 0.008 [s]
Min: -1.5 [g] at -0.018 [s]



FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

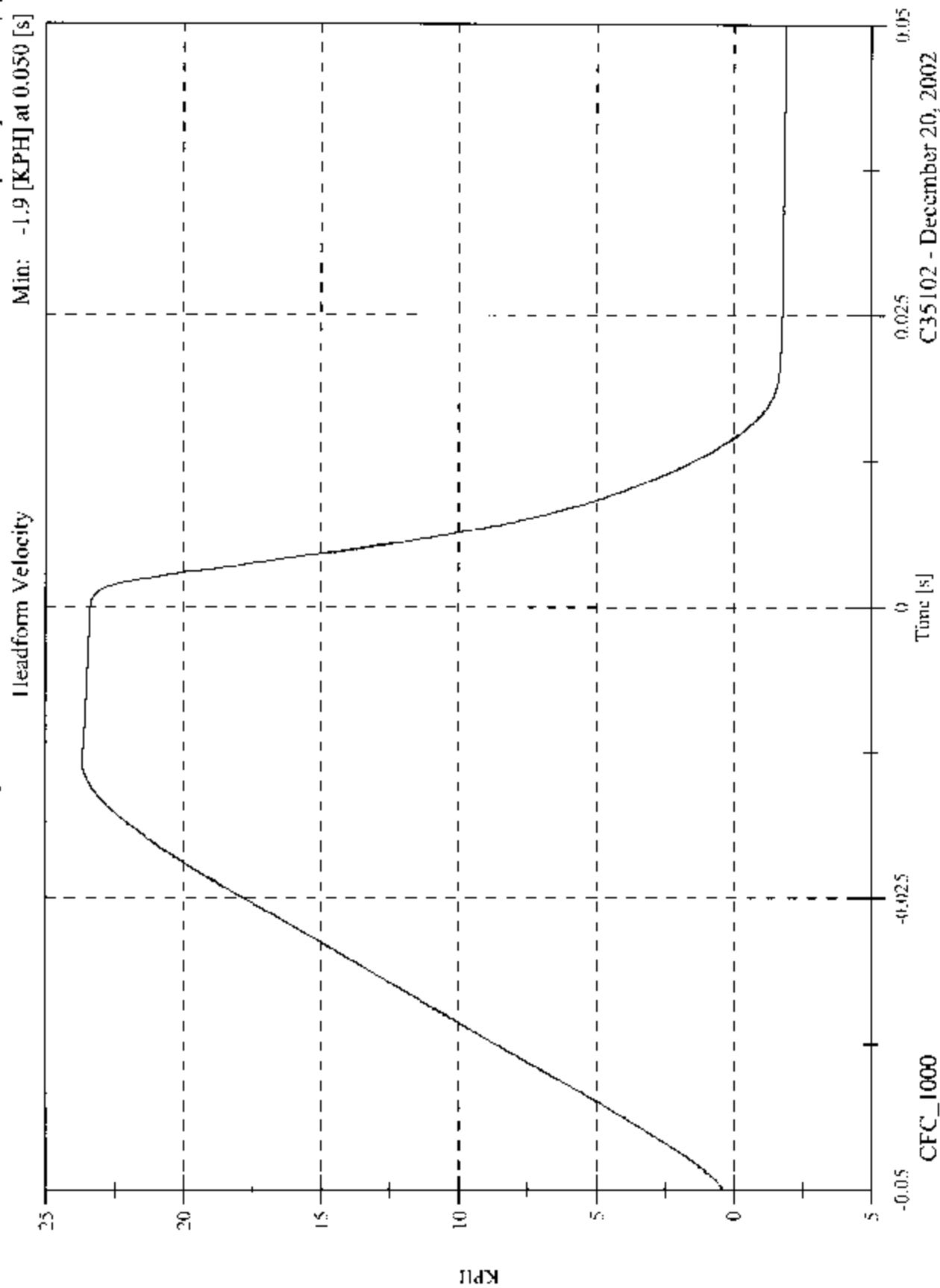
Headform Resultant

Max: 90.3 [g] at 0.004 [s]
Min: 0.7 [g] at -0.011 [s]



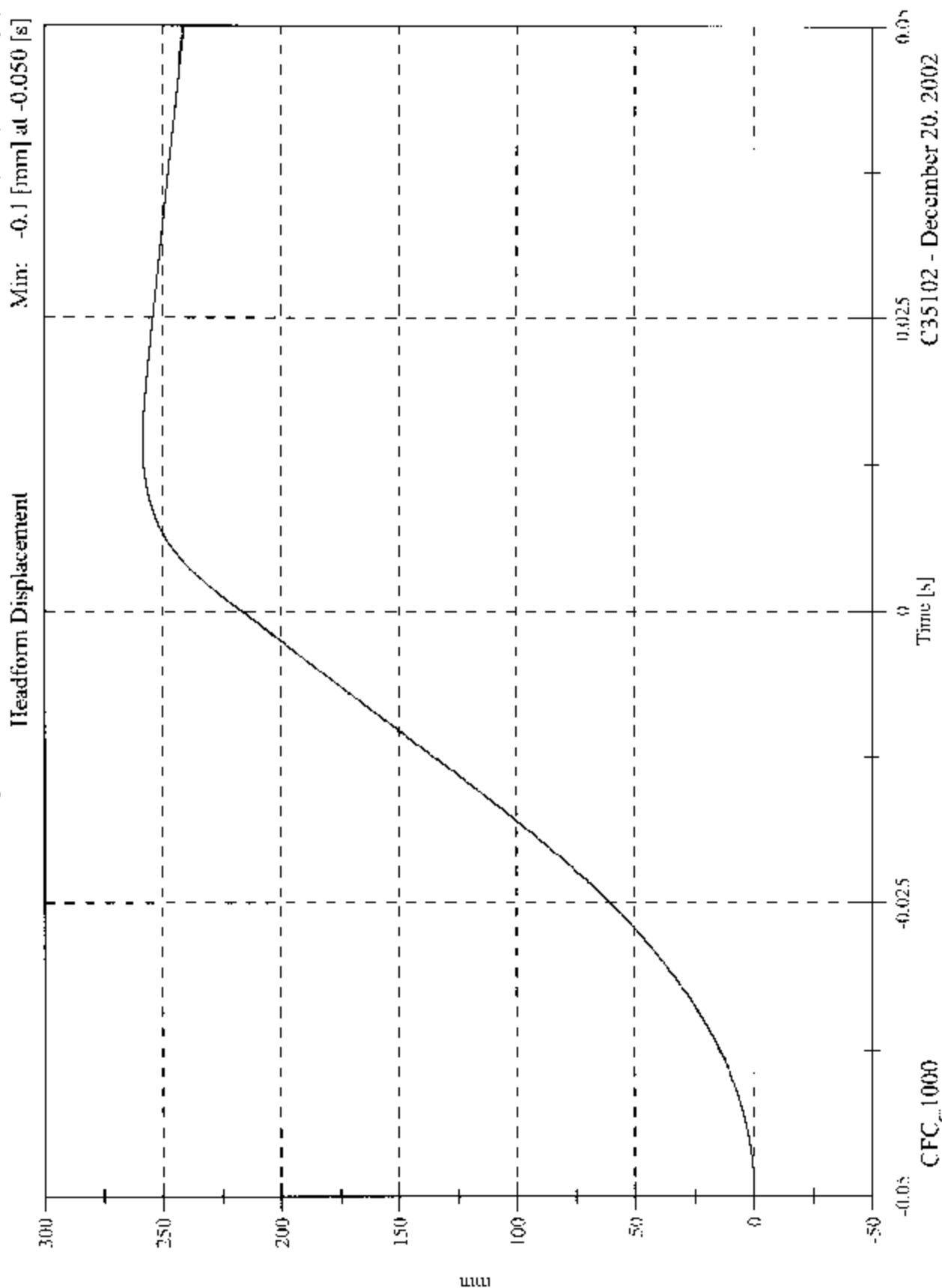
FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

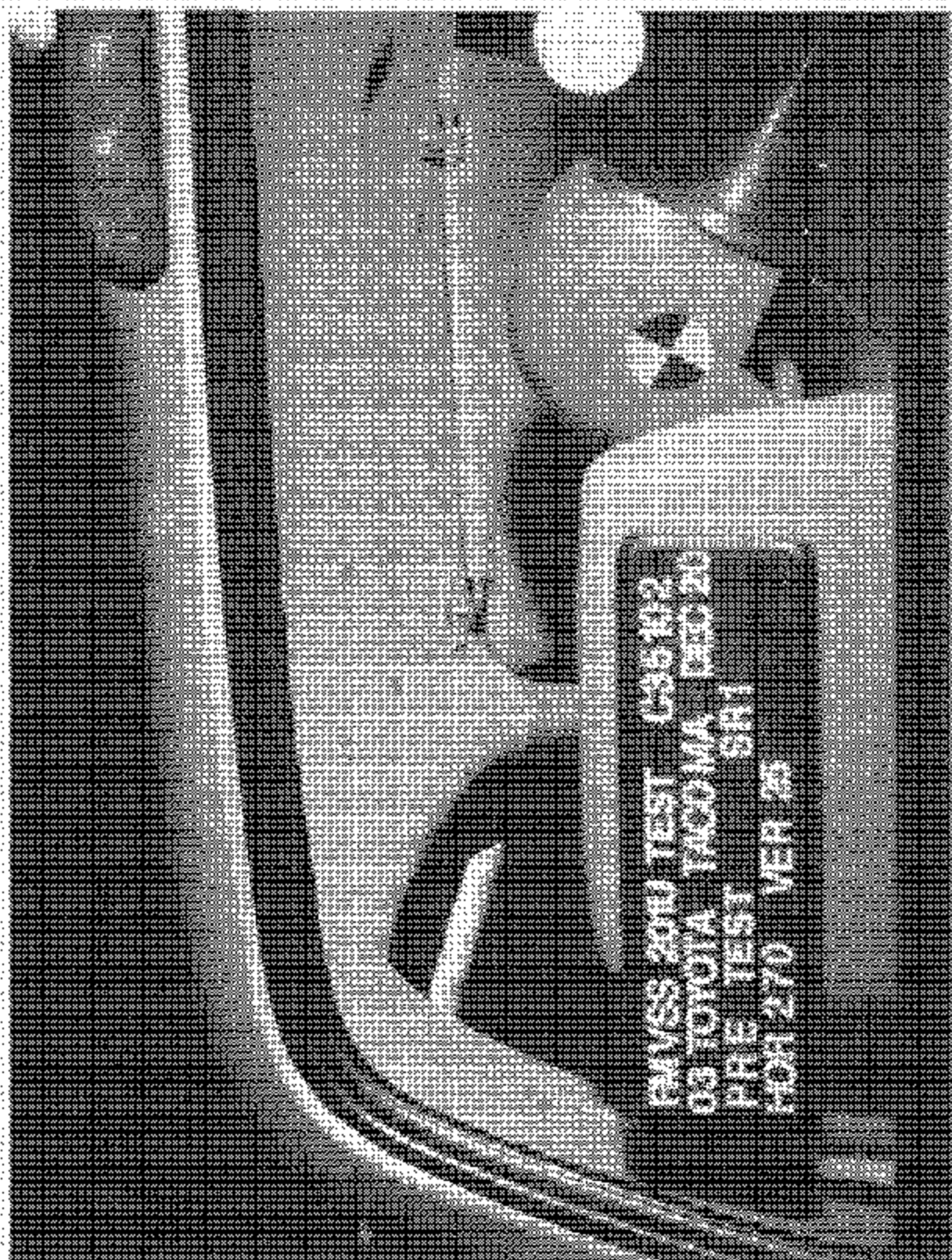
Max: 23.7 [KPH] at -0.013 [s]
 Min: -1.9 [KPH] at 0.050 [s]



FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

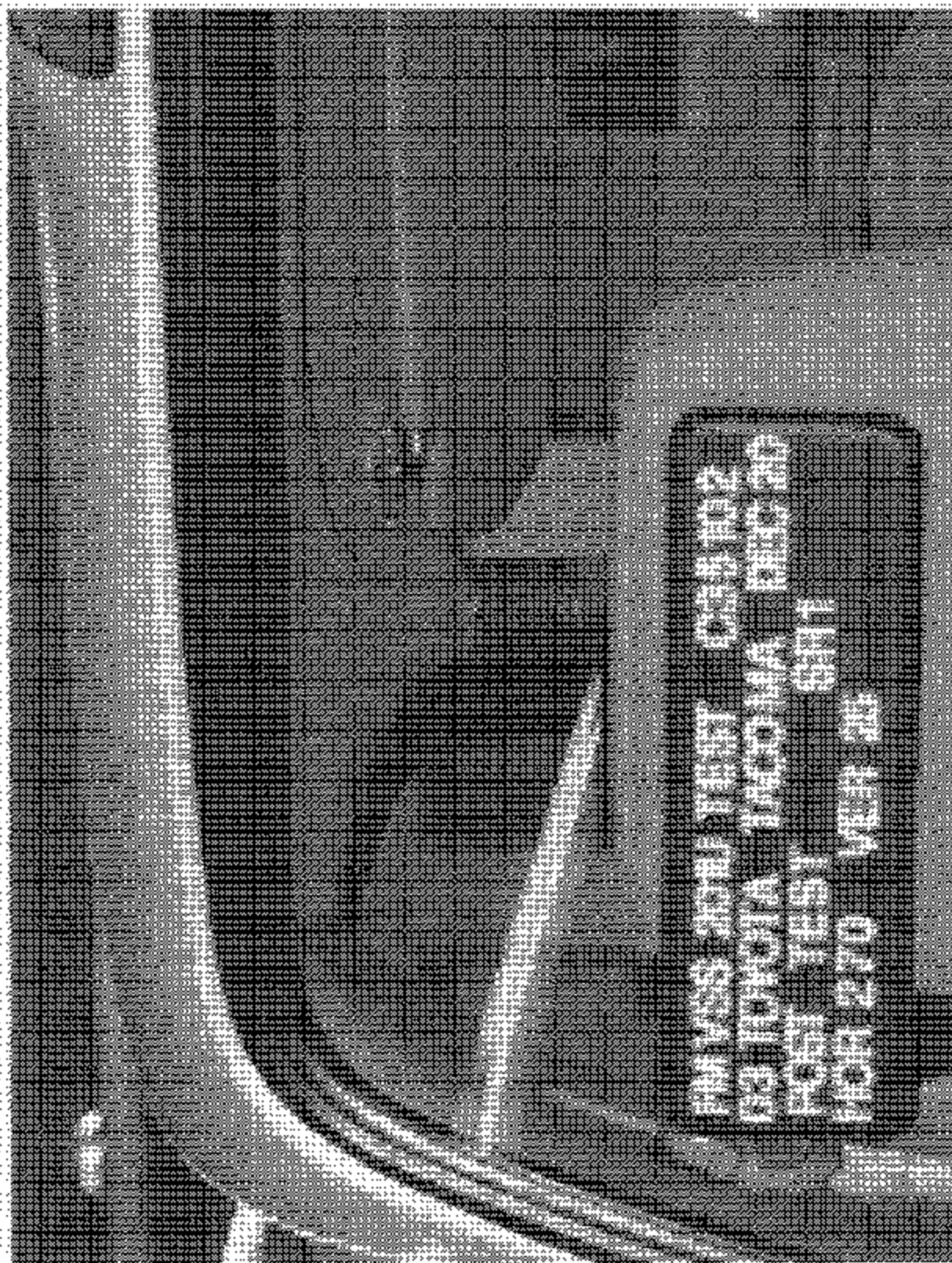
Max: 258.2 [mm] at 0.015 [s]
 Min: -0.1 [mm] at -0.050 [s]





EMVSS 2014 TEST C36182

EMVSS 2014 TEST C36182
03 TOYOTA TACOMA DEC 20
PRE TEST SR1
HCH 270 VER 25



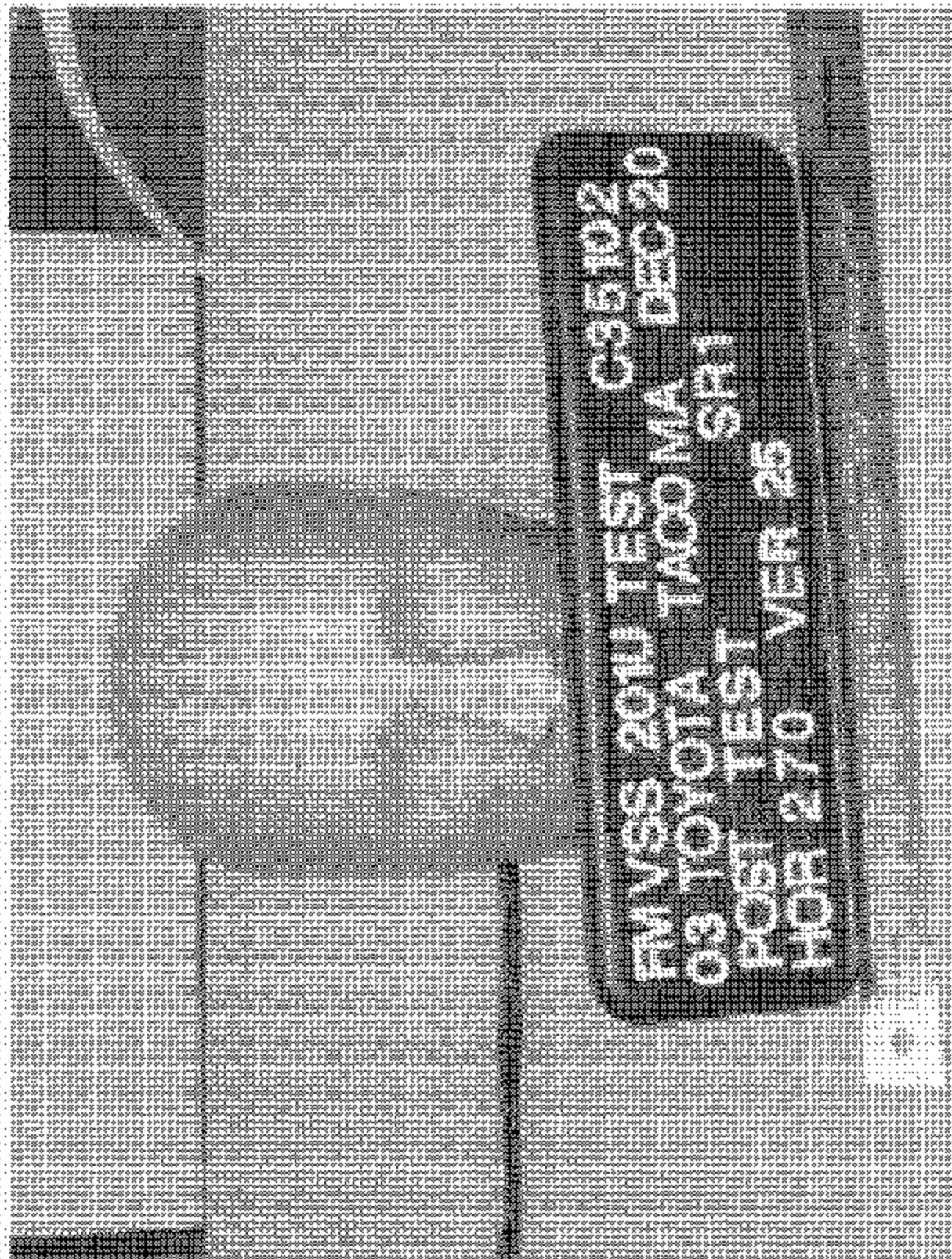


FIGURE 1. ARI HEADCURVE

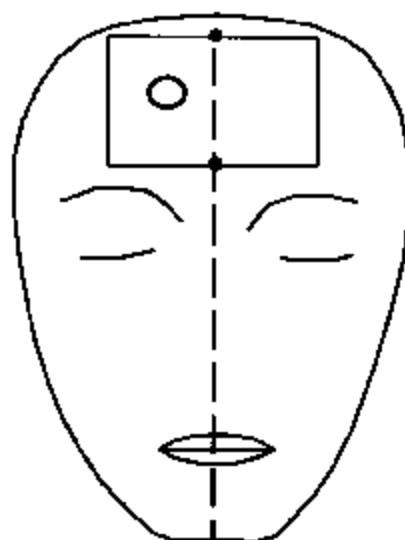
Year/Make/Model/Body Style: 2003 Toyota Tacoma Pick-up
 Vehicle Body Color: Gray VIN: 5TEN142N63Z157419
 Vehicle NHTSA No.: C35102 Month & Year of Manufacture: 09/02

Test Number: 9 Test Date: December 20, 2002
 Target Location: Driver Side Upper Roof Target Code: URSR
 Horizontal Impact Angle: 270° Vertical Impact Angle: 44°
 Ambient Temperature: 20.5 °C Time of Impact: 11:36
 Headform Number: 0062

Impact Point:

Description:

Description: From lower midpoint				
On centerline	48	mm up		
On centerline	10	x	mm right	- mm left



Free Motion HIC: 728.3 HIC(d): 715.9
 Impact Velocity (kph): 23.80 HIC1: 2.8 msec HIC2: 9.8 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma C35102 - URSR

FMH Headform 0062

Location: URSR

Test Date: December 20, 2002

Work File: fmh

-----TEST RESULTS-----

Lab Temperature: 20.5 C

HICd: 715.9

Lab Humidity: 22 %

HIC (36ms): 728.3

Velocity at Impact: 23.80 KPH

t1: 2.8 msec

t2: 9.8 msec

Free Flight Distance: 215.40 mm

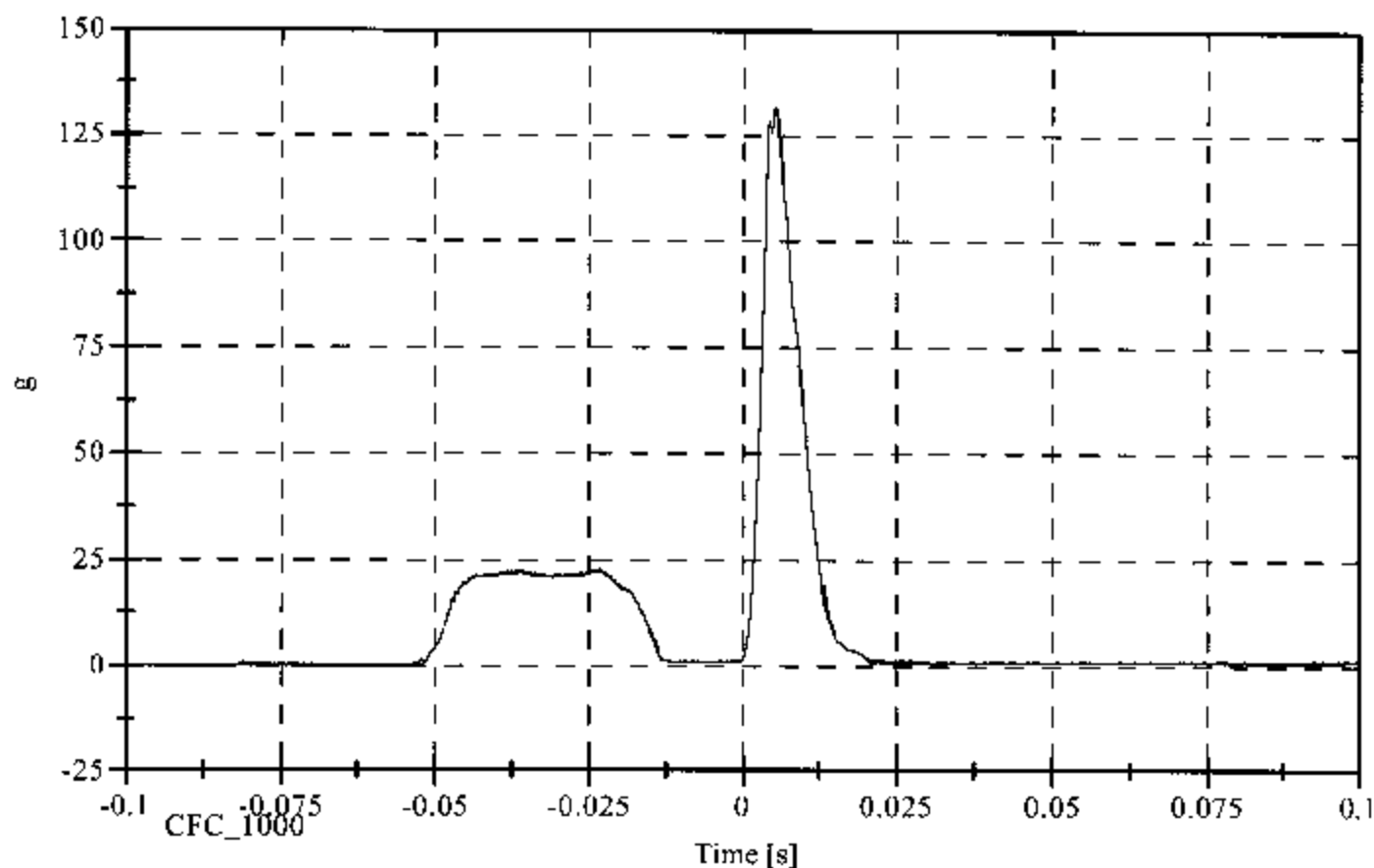
Duration: 7.1 msec

Average Acceleration: 8.6 g

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma
Headform Resultant

Max: 131.6 [g] at 0.005 [s]

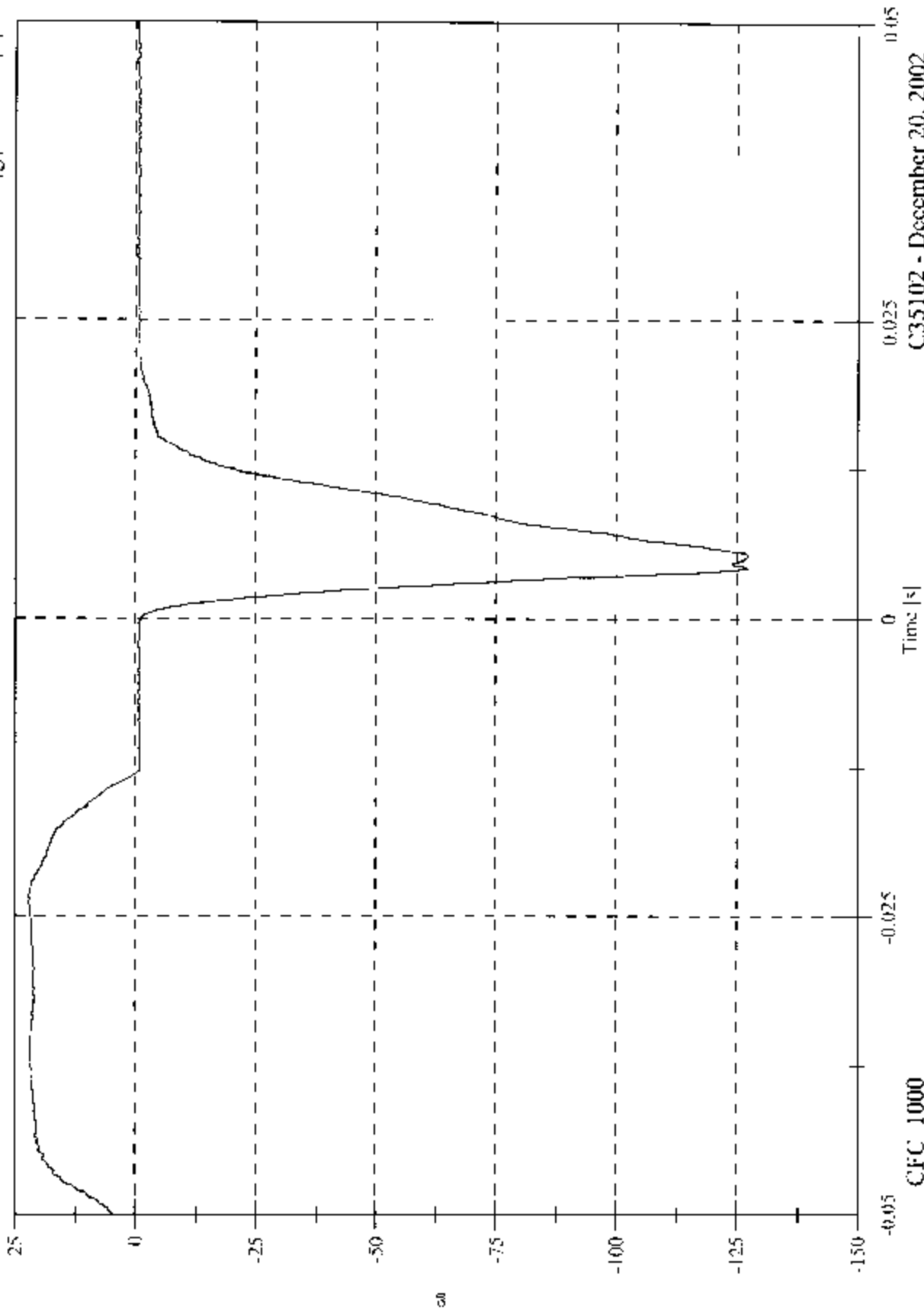
Min: -0.0 [g] at -0.099 [s]



FMVSS 201C IMPACT TEST - 2003 Toyota Tacoma

Headform X Acceleration

Max: 22.4 [g] at -0.024 [s]
Min: -127.2 [g] at 0.005 [s]

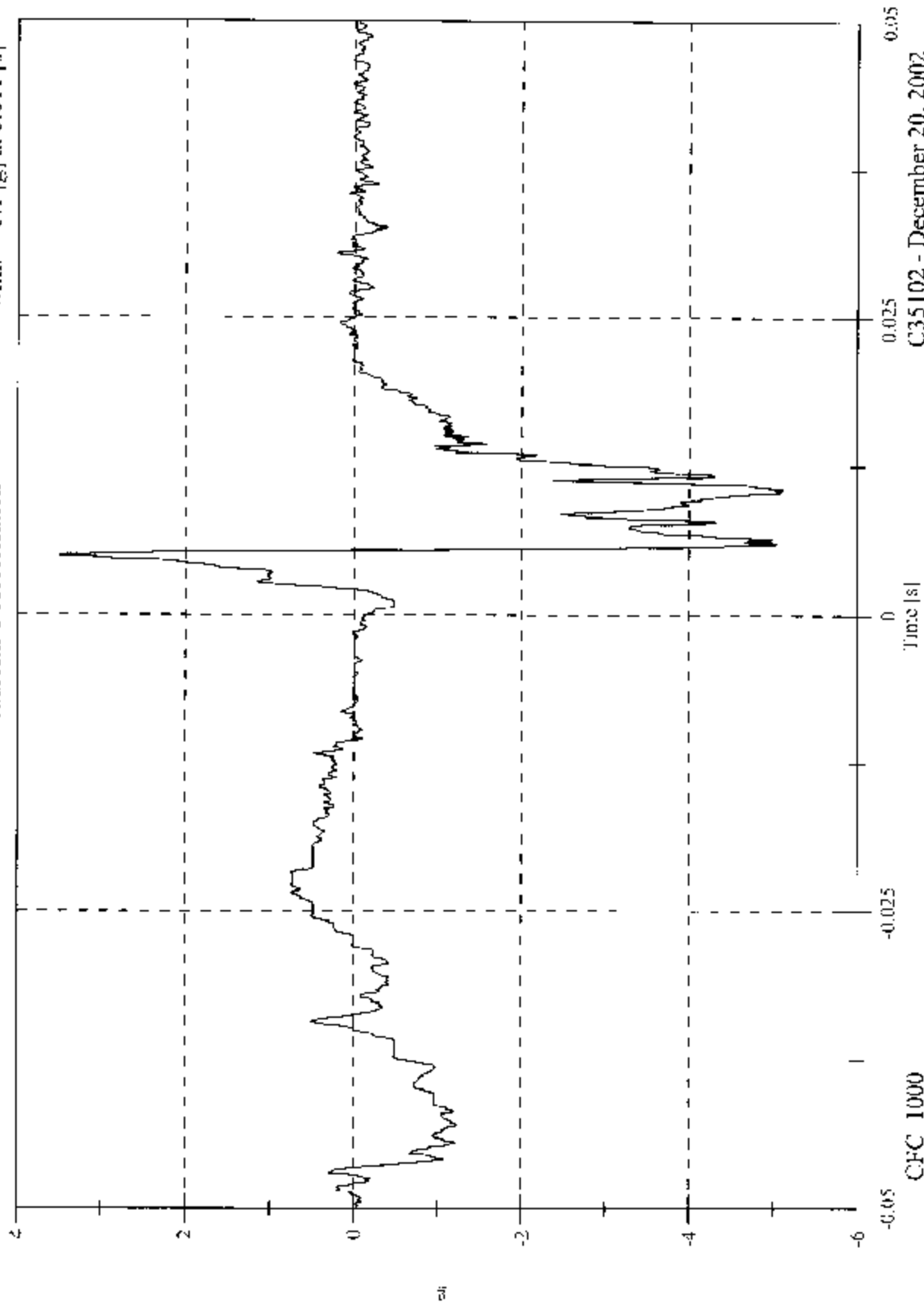


CFC_1000

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Y Acceleration

Max: 3.5 [g] at 0.005 [s]
Min: -5.1 [g] at 0.011 [s]

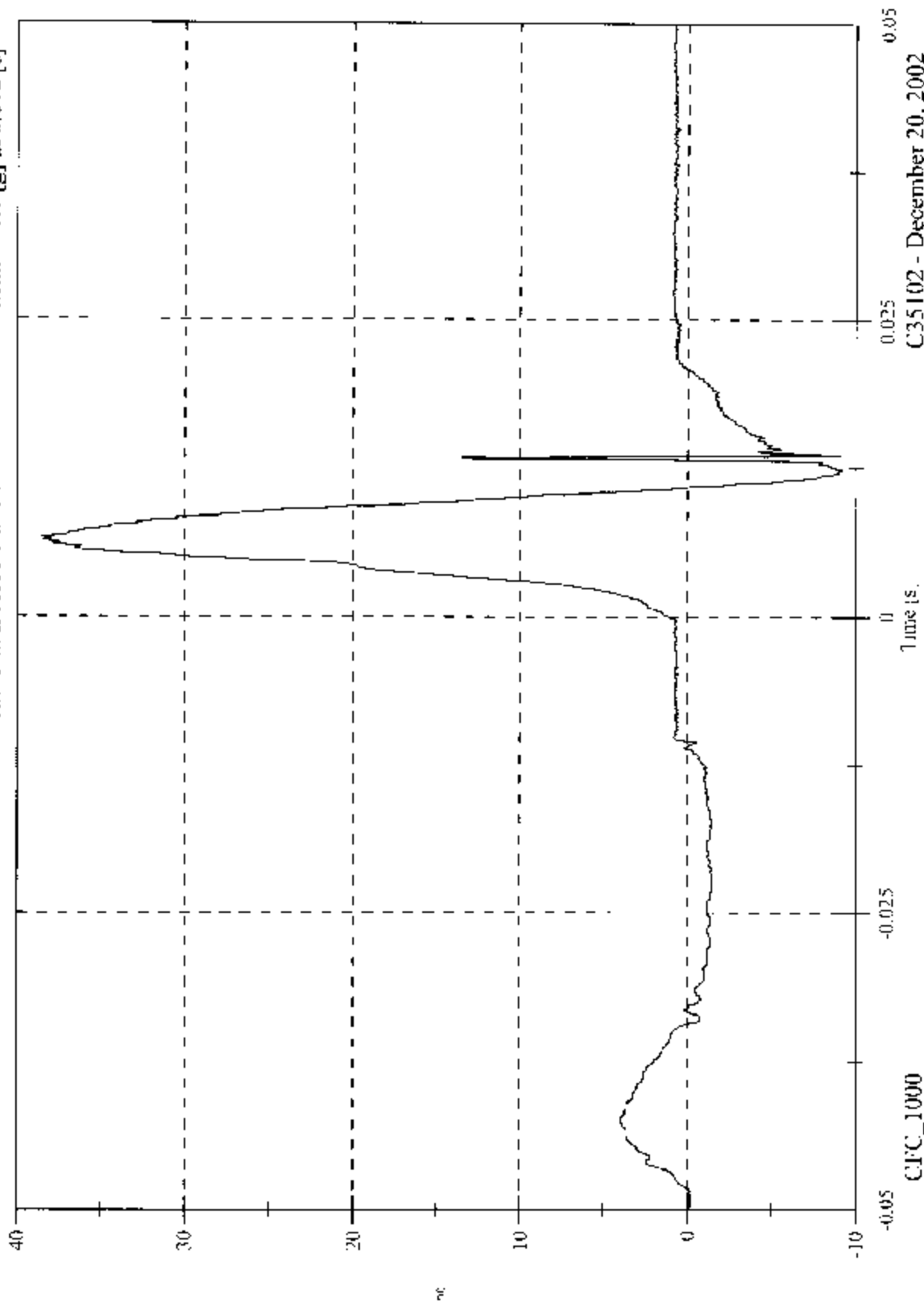


CFC_1000

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Z Acceleration

Max: 38.6 [g] at 0.007 [s]
Min: -9.1 [g] at 0.012 [s]



CFC_1000

-0.025

Time [s.]

0.025

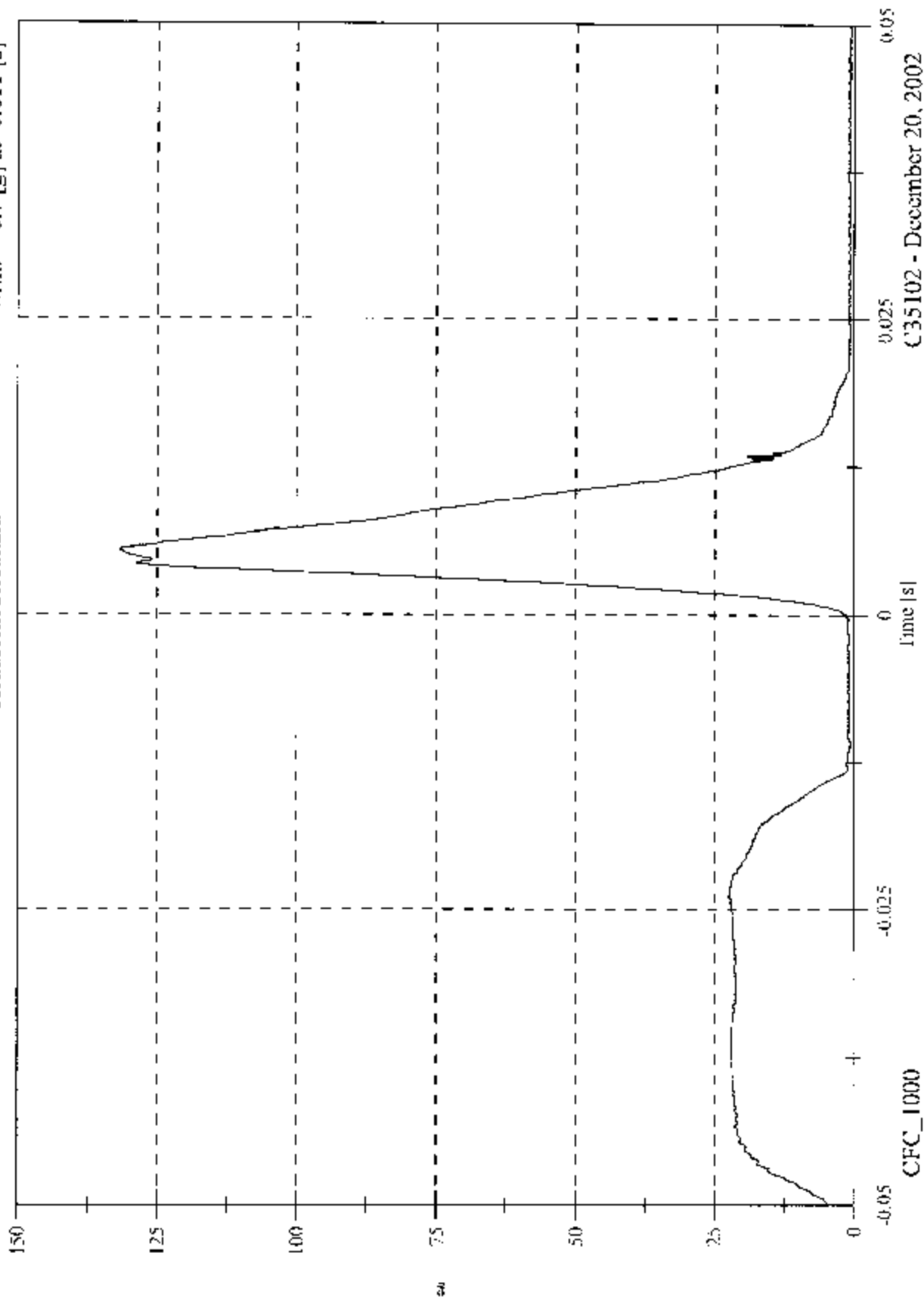
C35102 - December 20, 2002

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Resultant

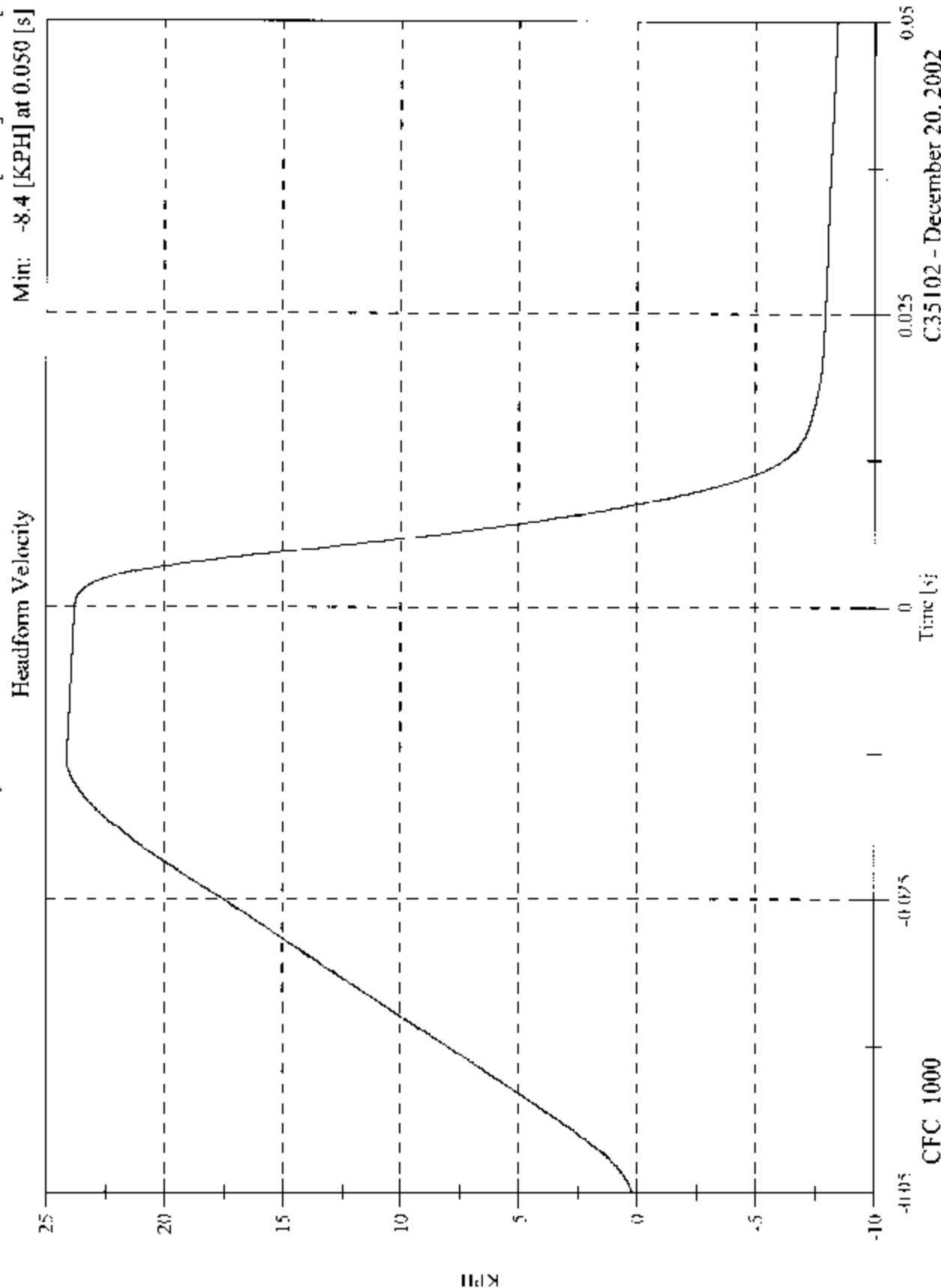
Max: 131.6 [g] at 0.005 [s]

Min: 0.7 [g] at -0.011 [s]

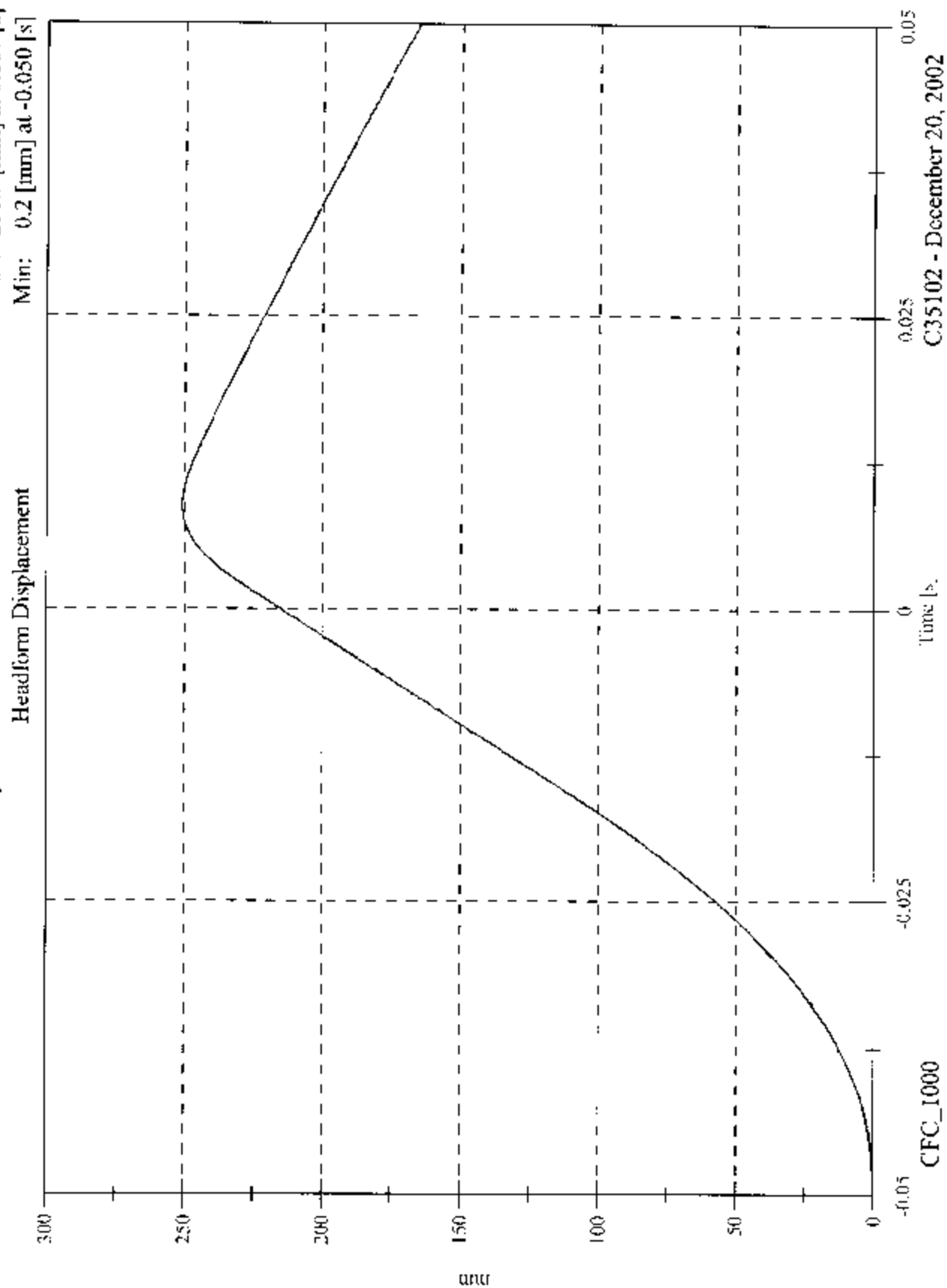


FMVSS 201C IMPACT TEST - 2003 Toyota Tacoma

Max: 24.1 [KPH] at -0.013 [s]
 Min: -8.4 [KPH] at 0.050 [s]



GMVSS 201C IMPACT TEST - 2003 Toyota Tacoma



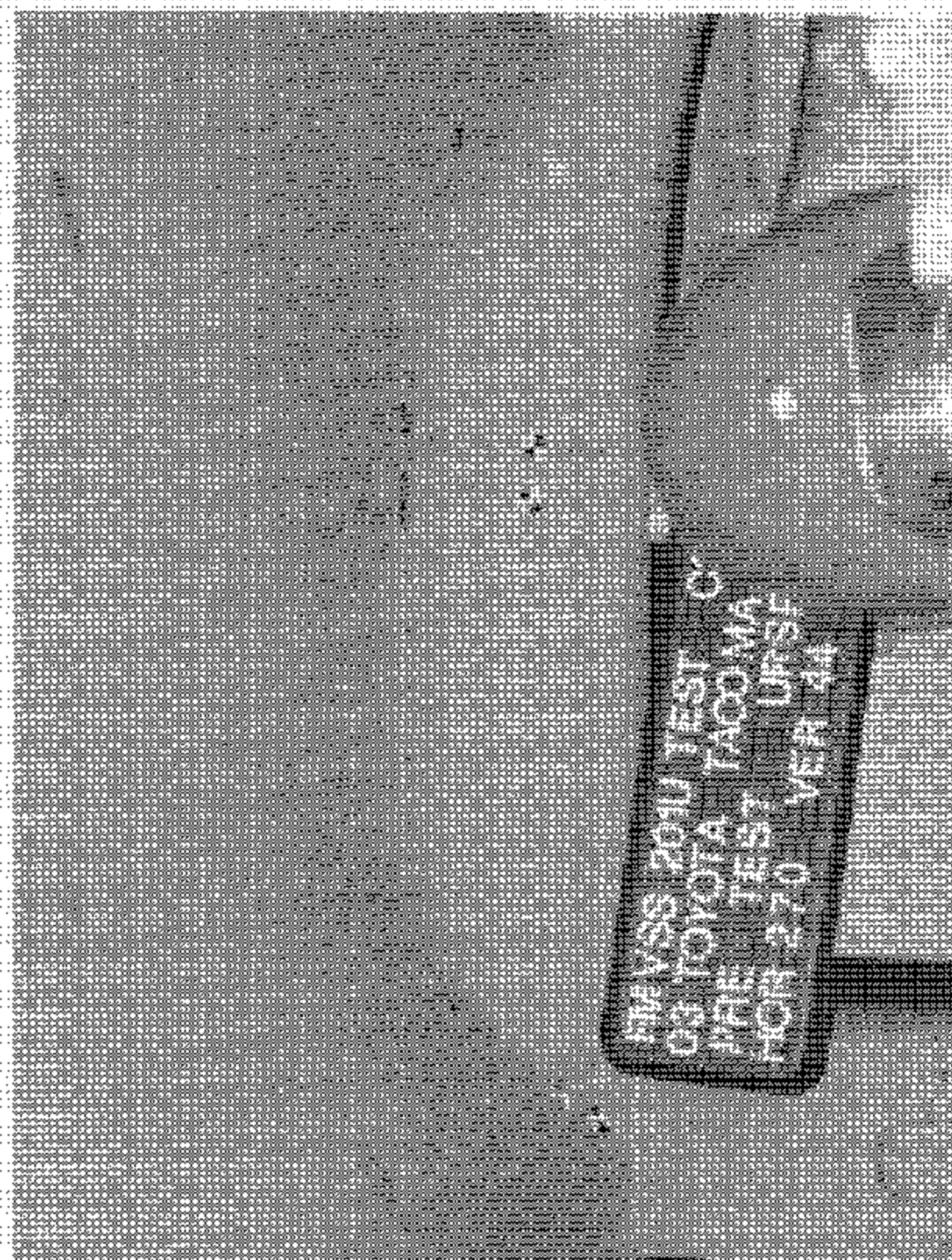


Figure 1: ORIGINAL

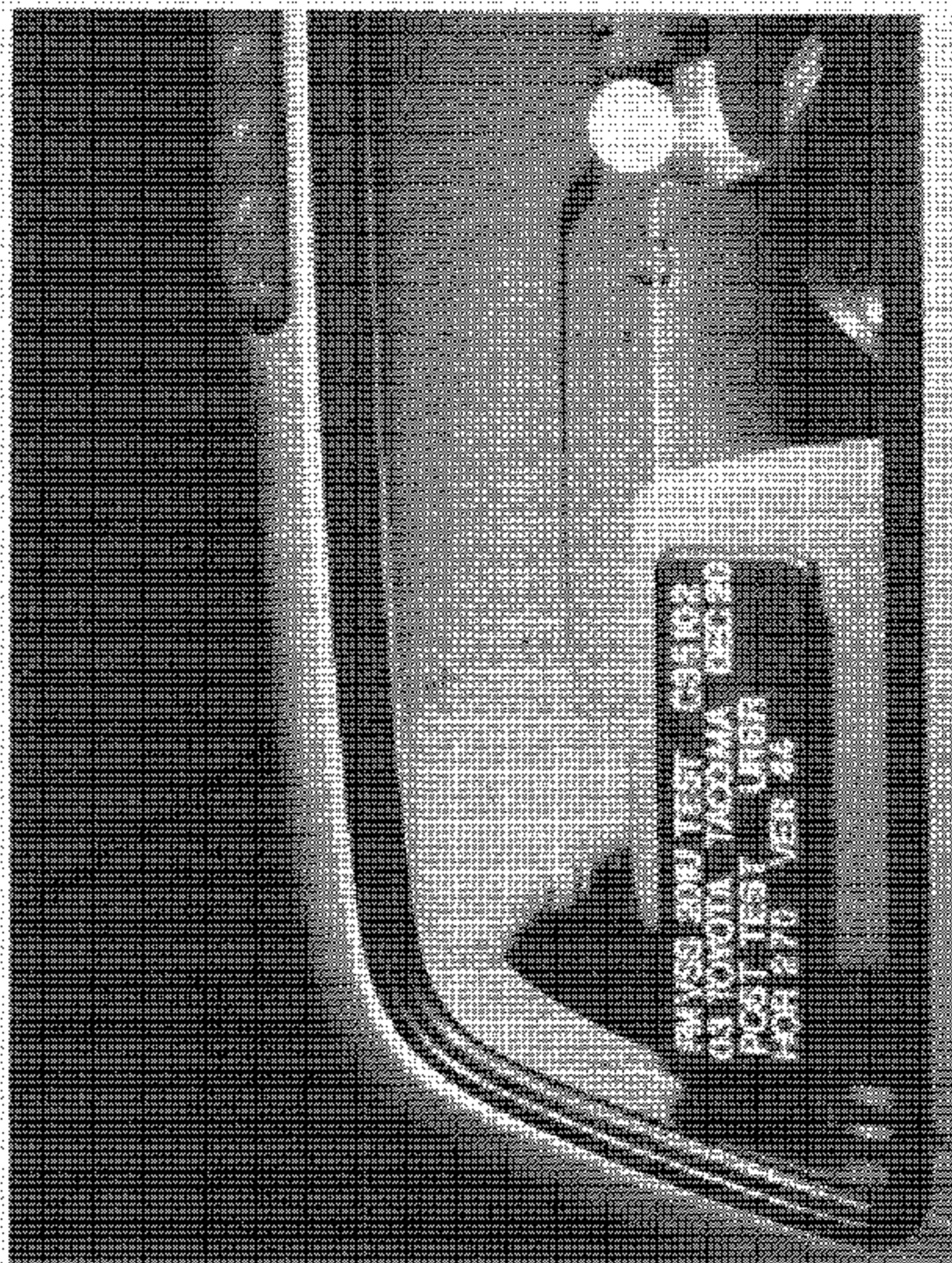


Figure 1. Toyota Tacoma

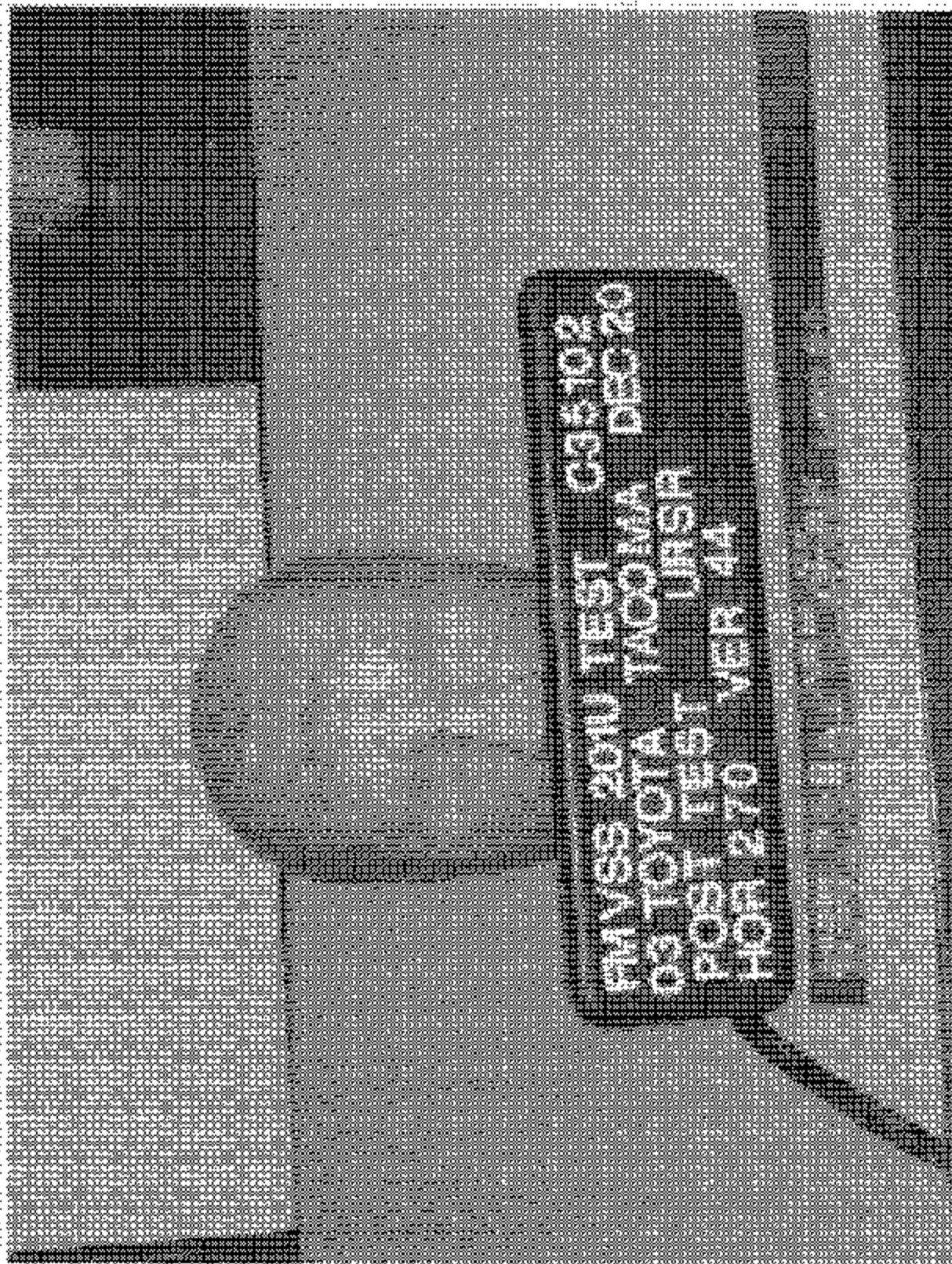


Figure 1: 201W Test Vehicle

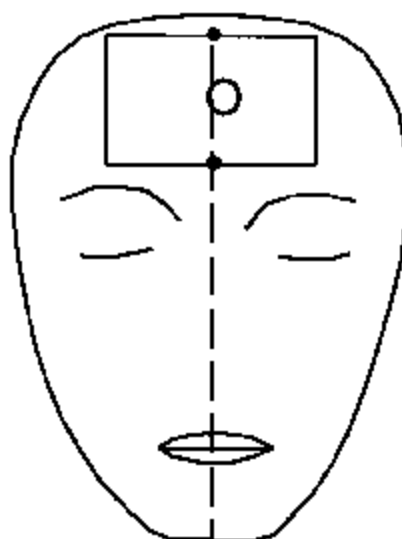
Year/Make/Model/Body Style: 2003 Toyota Tacoma Pick-up
 Vehicle Body Color: Gray VIN: 5TENL42N63Z157419
 Vehicle NHTSA No.: C35102 Month & Year of Manufacture: 09/02

Test Number: 10 Test Date: December 20, 2002
 Target Location: Driver Side Rear Header Target Code: RII
 Horizontal Impact Angle: 0 ° Vertical Impact Angle: 34 °
 Ambient Temperature: 20.5 °C Time of Impact: 14:05
 Headform Number: 0805

Impact Point:

Description:

Description:	From lower midpoint				
On centerline	22	mm up			
On centerline	3	-	mm right	x	mm left



Free Motion HIC: 295.5 HIC(d): 389.3
 Impact Velocity (kph): 23.38 HIC1: 1.4 msec HIC2: 13.6 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma C35102 - RH

FMH Headform 0805

Location: RH

Test Date: December 20, 2002

Work File: fmh

-----TEST RESULTS-----

Lab Temperature: 20.5 C

HICd: 389.3

Lab Humidity: 22 %

HIC (36ms): 295.5

Velocity at Impact: 23.38 KPH

t1: 1.3 msec

t2: 13.6 msec

Free Flight Distance: 214.44 mm

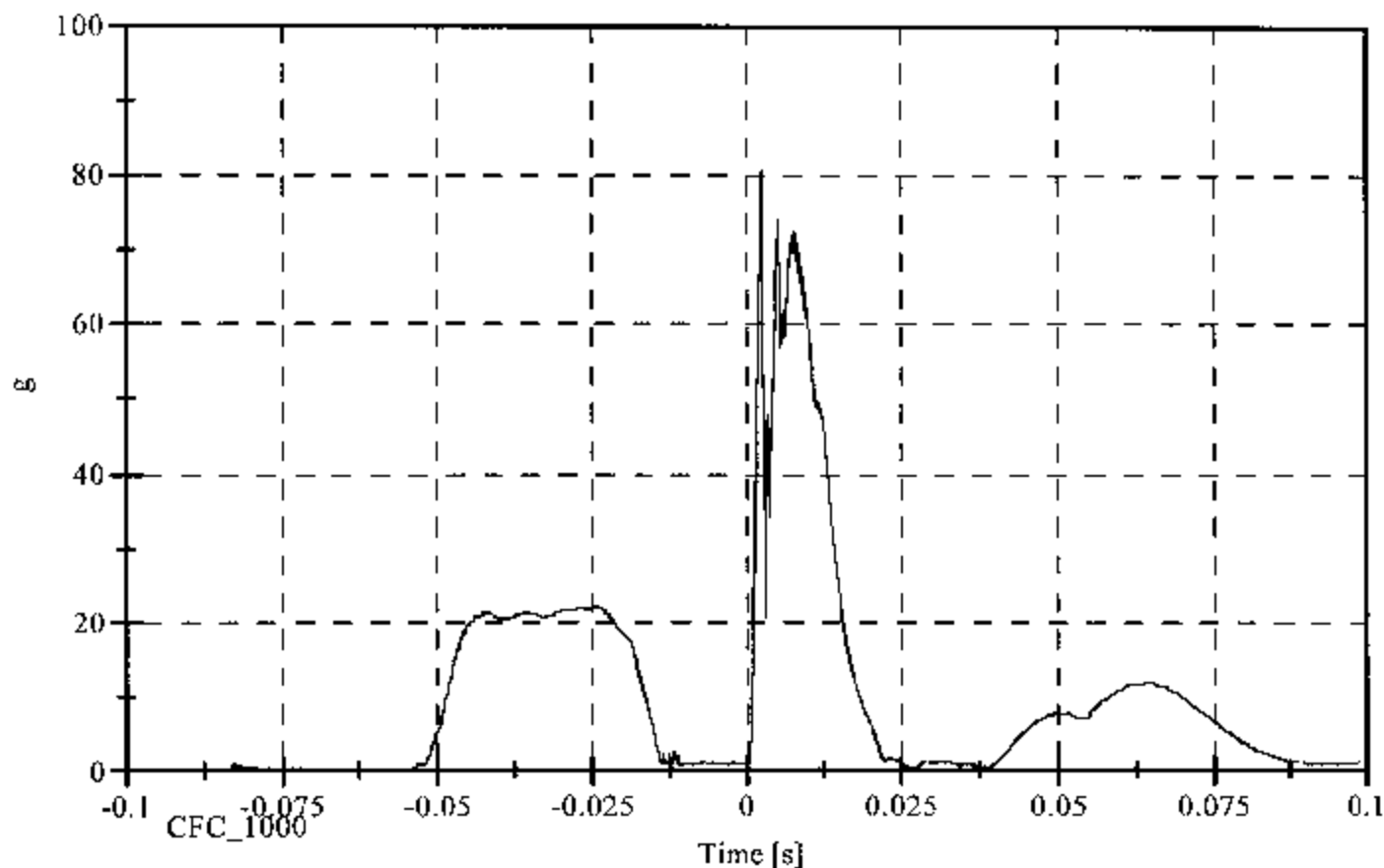
Duration: 12.3 msec

Average Acceleration: 9.4 g

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma
Headform Resultant

Max: 80.8 [g] at 0.002 [s]

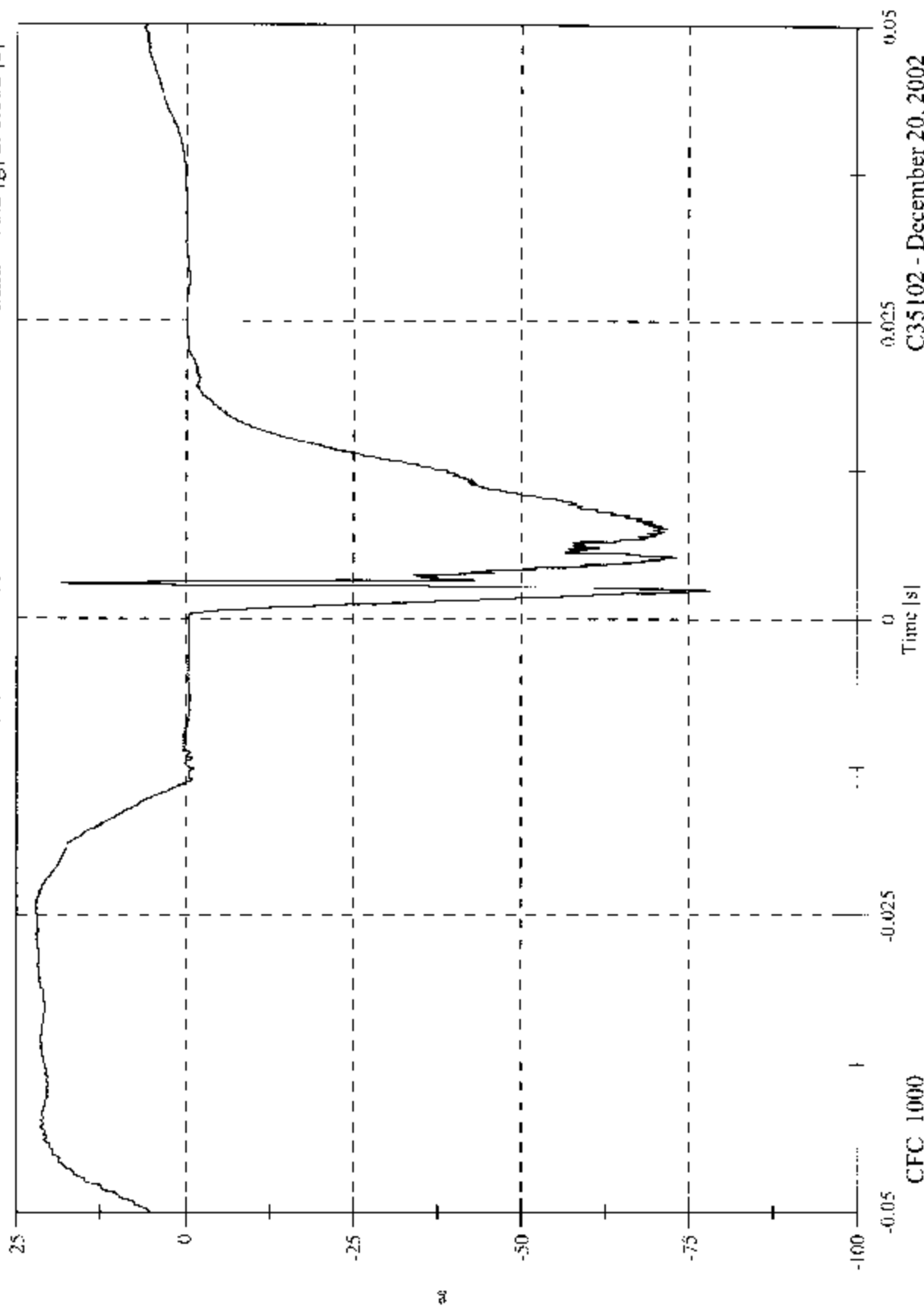
Min: 0.0 [g] at -0.096 [s]



FMVSS 201C IMPACT TEST - 2003 Toyota Tacoma

Headform X Acceleration

Max: 22.2 [g] at -0.024 [s]
 Min: -78.2 [g] at 0.002 [s]

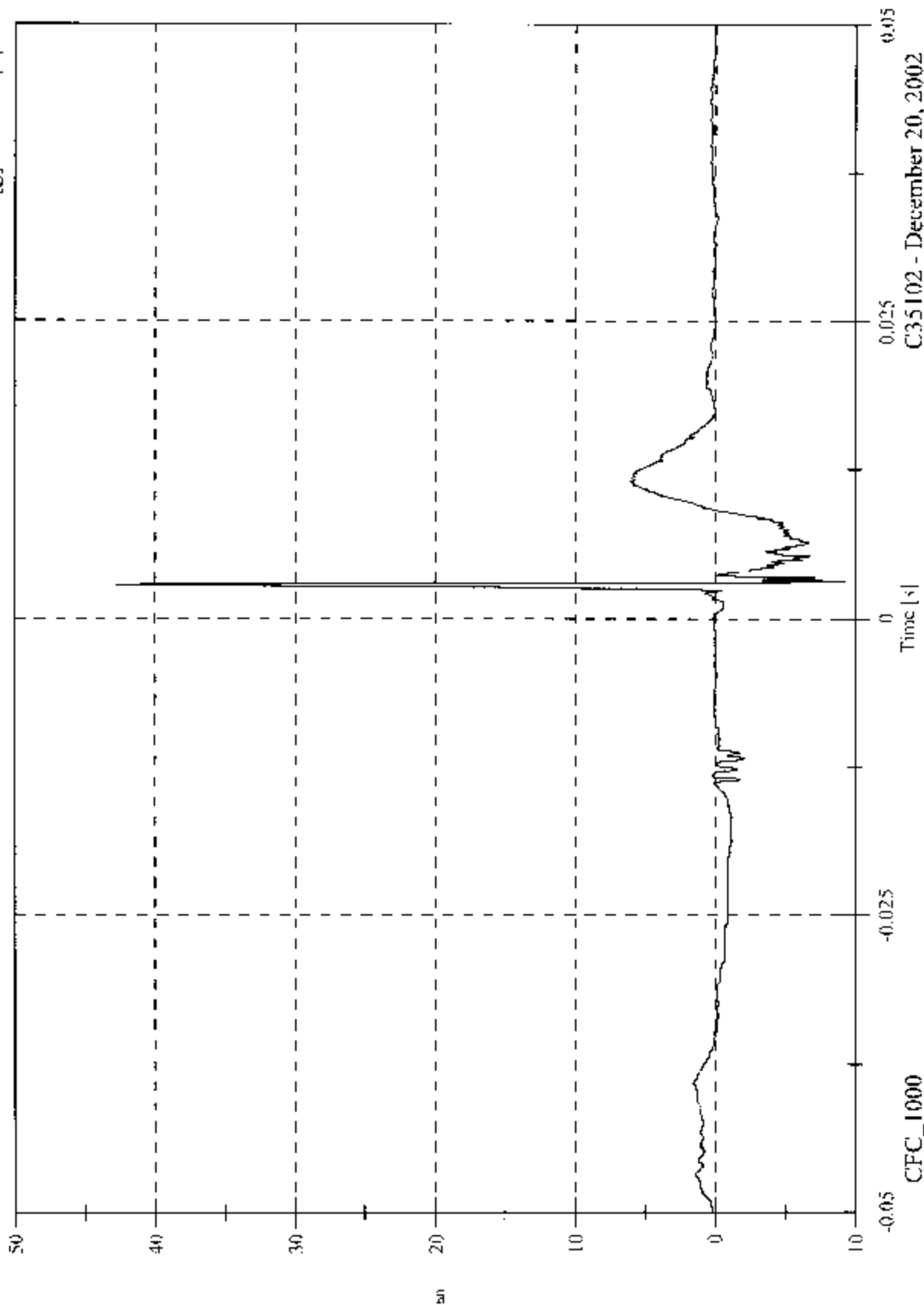


CFC_1000

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Y Acceleration

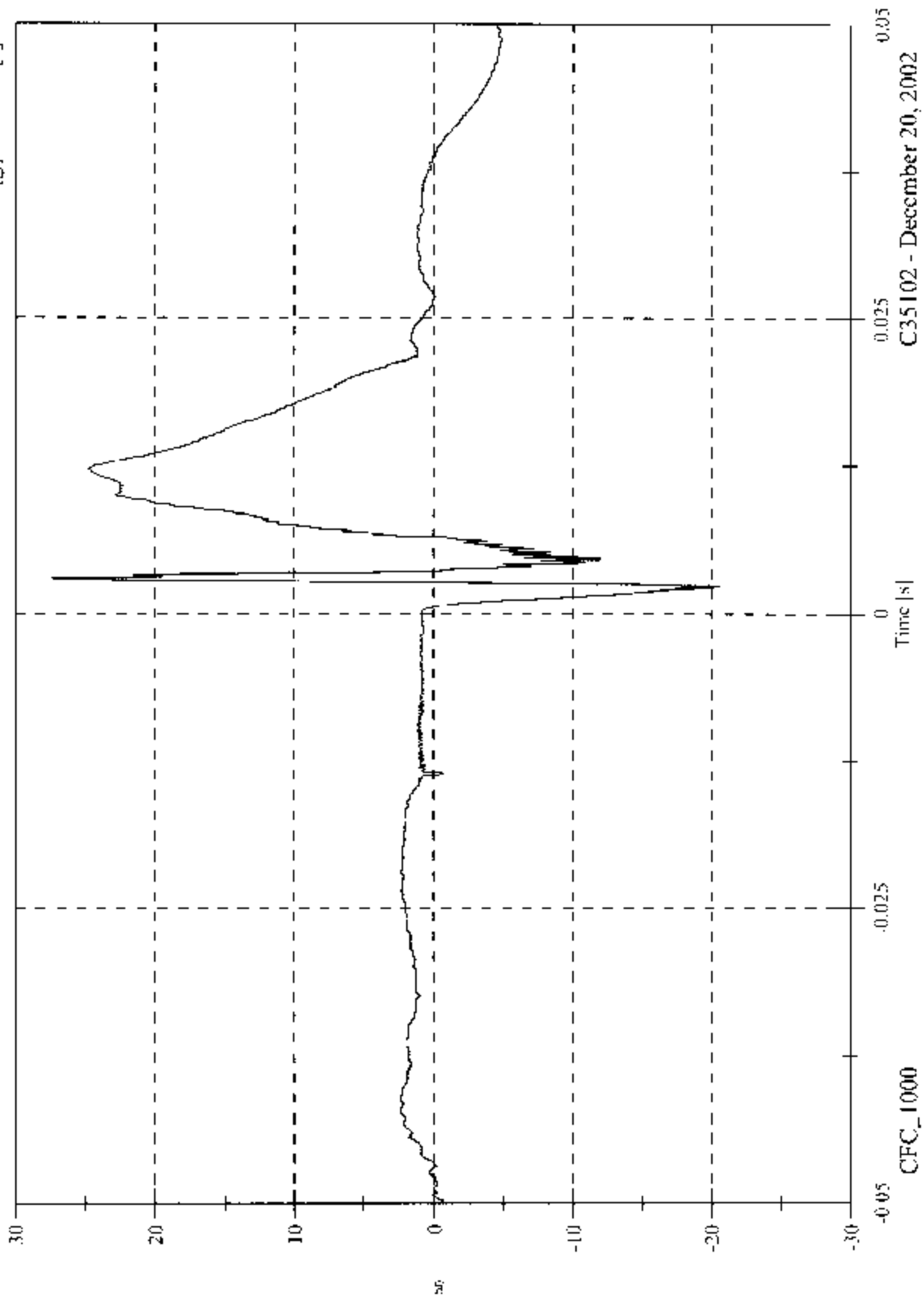
Max: 42.8 [g] at 0.003 [s]
Min: -9.2 [g] at 0.003 [s]



FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Z Acceleration

Max: 27.4 [g] at 0.003 [s]
Min: -20.5 [g] at 0.002 [s]



CFC_1000

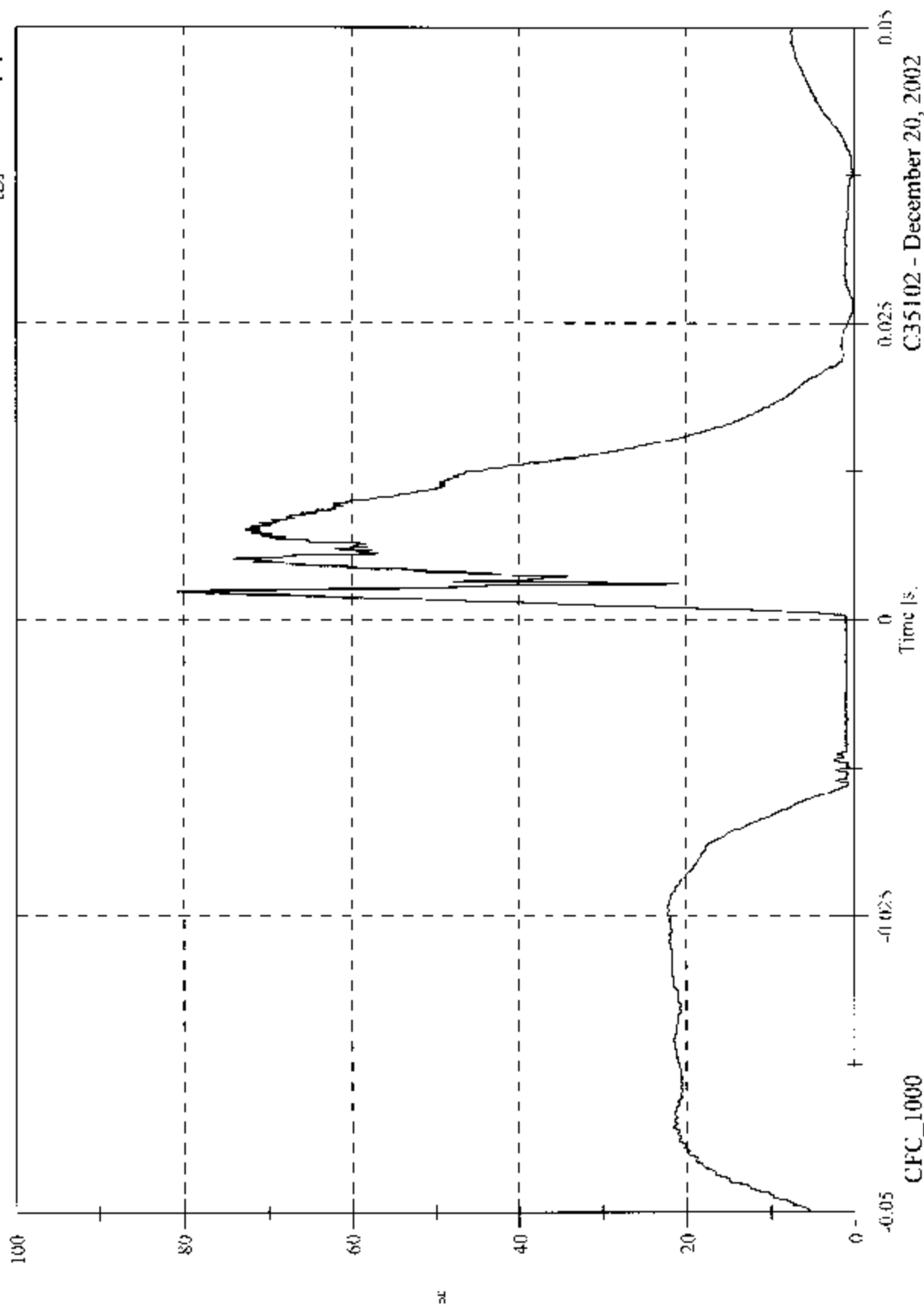
Time [s]

C35102 - December 20, 2002

FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

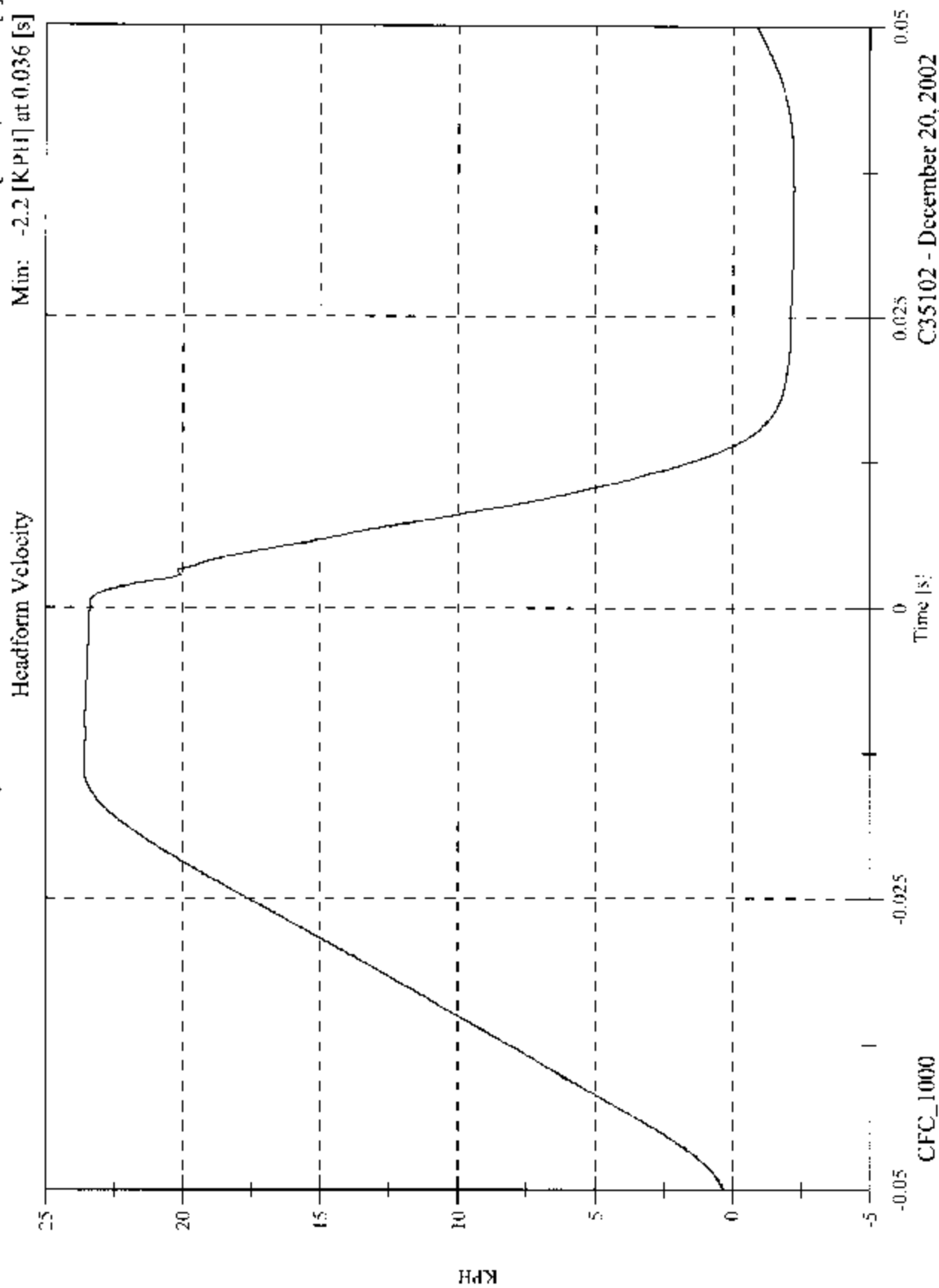
Max: 80.8 [g] at 0.002 [s]
Min: 0.2 [g] at 0.027 [s]

Headform Resultant



FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

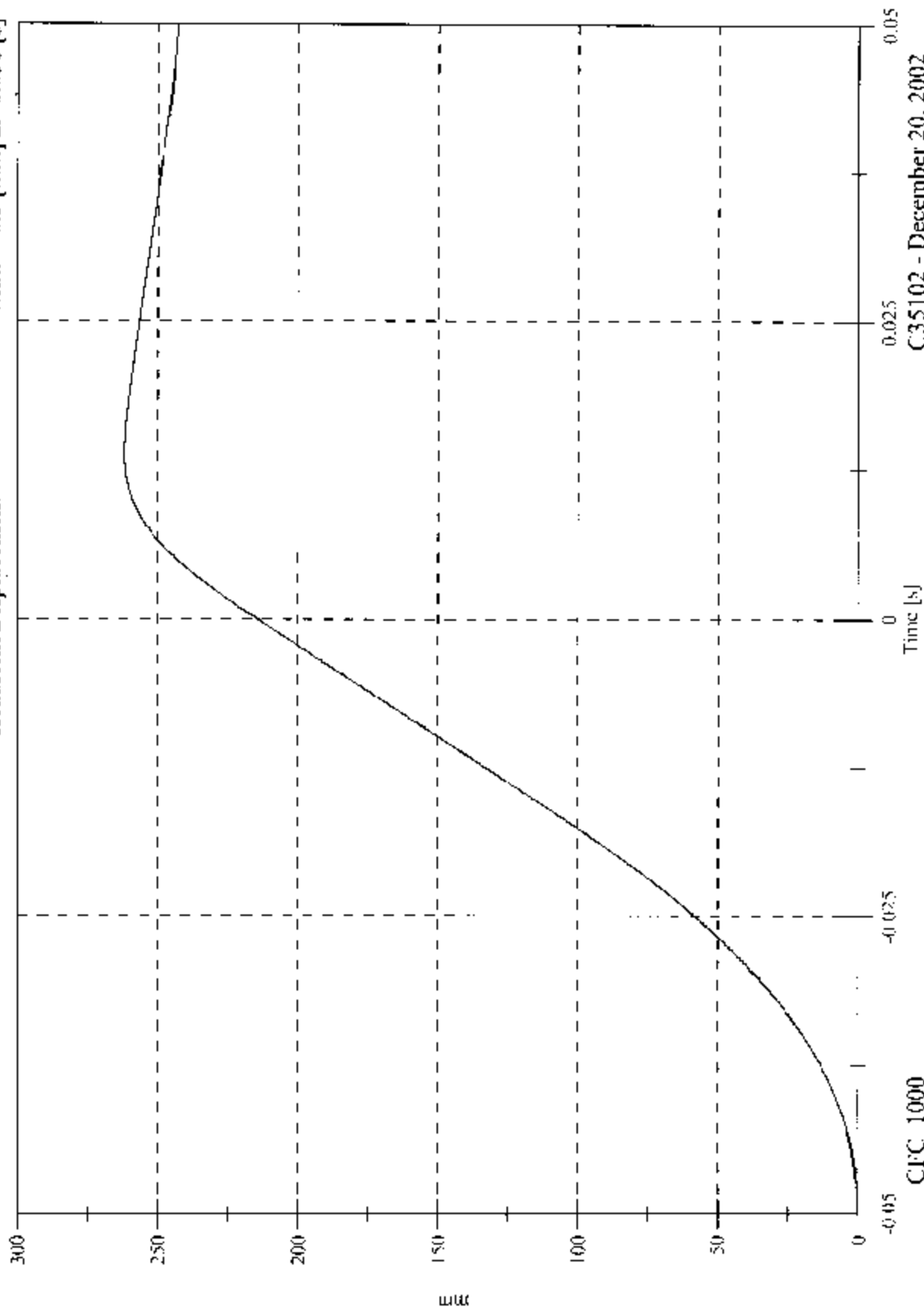
Max: 23.6 [KPH] at -0.014 [s]
 Min: -2.2 [KPH] at 0.036 [s]



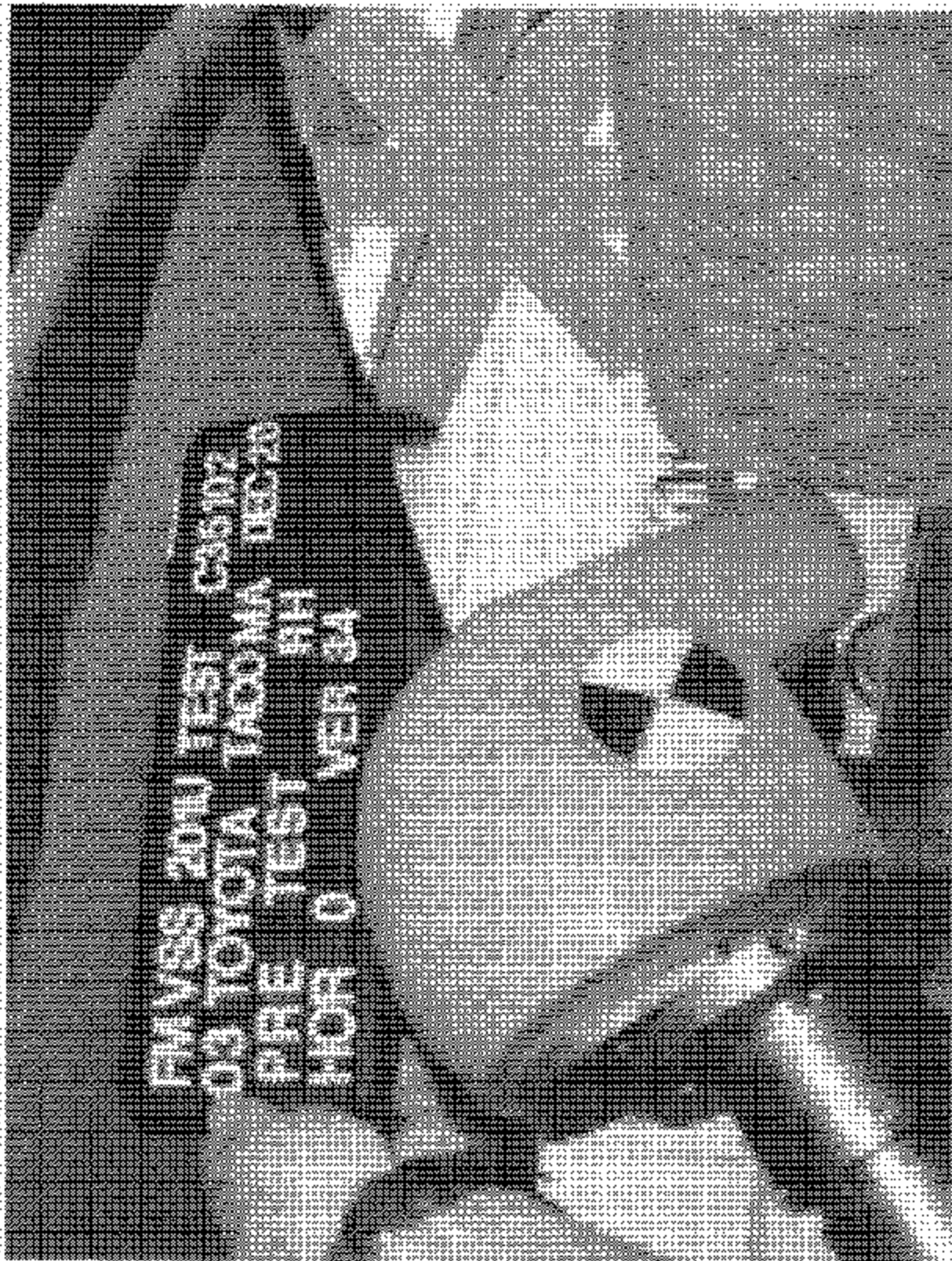
FMVSS 201U IMPACT TEST - 2003 Toyota Tacoma

Headform Displacement

Max: 261.8 [mm] at 0.014 [s]
Min: 0.5 [mm] at -0.050 [s]



CFC_1000



FLYERS 2011 TEST CASE
03 TOYOTA TACOMA 1000
PHE TEST PH
FROM 0 VER 34

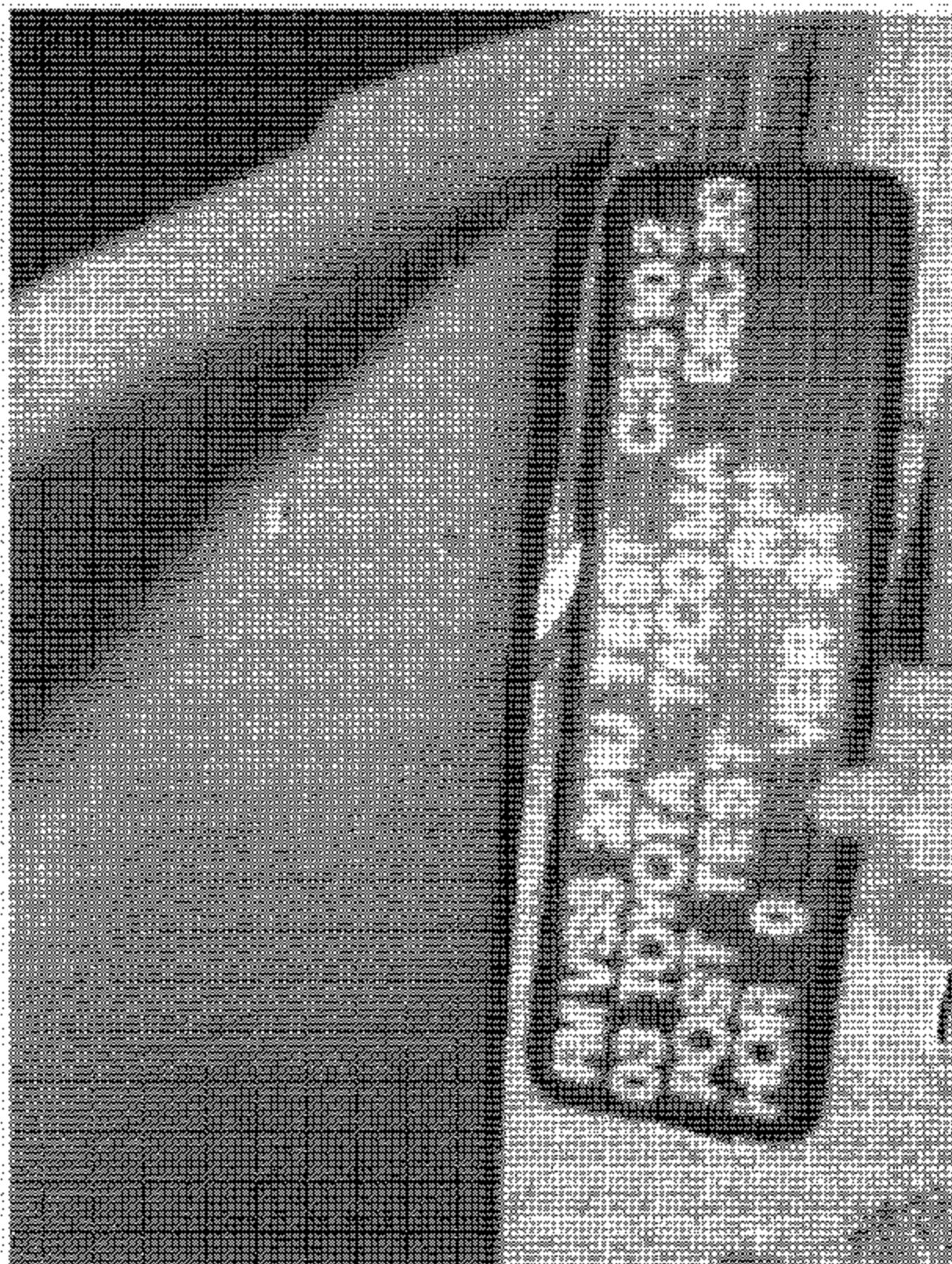


Figure 1. PONTIUS & ASS.



Figure 1: RH11-330000

APPENDIX A
PHOTOGRAPHS

PHOTOGRAPHS

<u>FIGURE</u>	<u>VIEW</u>
A-1	LEFT SIDE VIEW OF VEHICLE
A-2	RIGHT SIDE VIEW OF VEHICLE
A-3	3/4 FRONTAL VIEW FROM LEFT SIDE OF VEHICLE
A-4	3/4 REAR VIEW FROM RIGHT SIDE OF VEHICLE
A-5	VEHICLE'S CERTIFICATION LABEL
A-6	VEHICLE'S TIRE INFORMATION LABEL
A-7	PRE-TEST DRIVER SIDE A-PILLAR
A-8	PRE-TEST DRIVER SIDE FRONT HEADER
A-9	PRE-TEST DRIVER SIDE SIDE RAIL
A-10	PRE-TEST DRIVER SIDE REAR PILLAR
A-11	PRE-TEST PASSENGER SIDE A-PILLAR
A-12	PRE-TEST PASSENGER SIDE FRONT HEADER
A-13	PRE-TEST PASSENGER SIDE SIDE RAIL
A-14	PRE-TEST PASSENGER SIDE REAR PILLAR
A-15	POST-TEST DRIVER SIDE A-PILLAR
A-16	POST-TEST DRIVER SIDE FRONT HEADER
A-17	POST-TEST DRIVER SIDE SIDE RAIL
A-18	POST-TEST DRIVER SIDE REAR PILLAR
A-19	POST-TEST PASSENGER SIDE A-PILLAR
A-20	POST-TEST PASSENGER SIDE FRONT HEADER
A-21	POST-TEST PASSENGER SIDE SIDE RAIL
A-22	POST-TEST PASSENGER SIDE REAR PILLAR

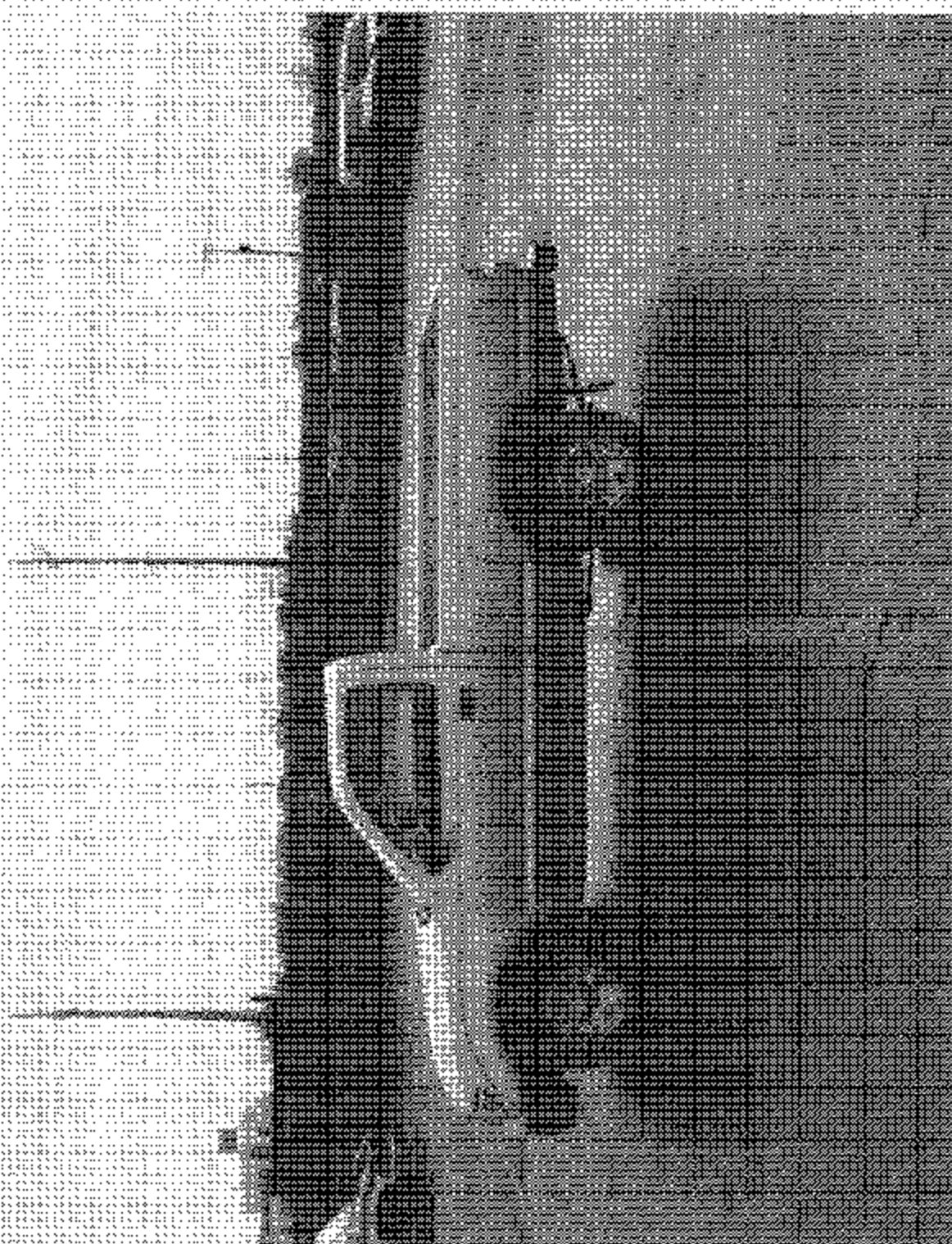
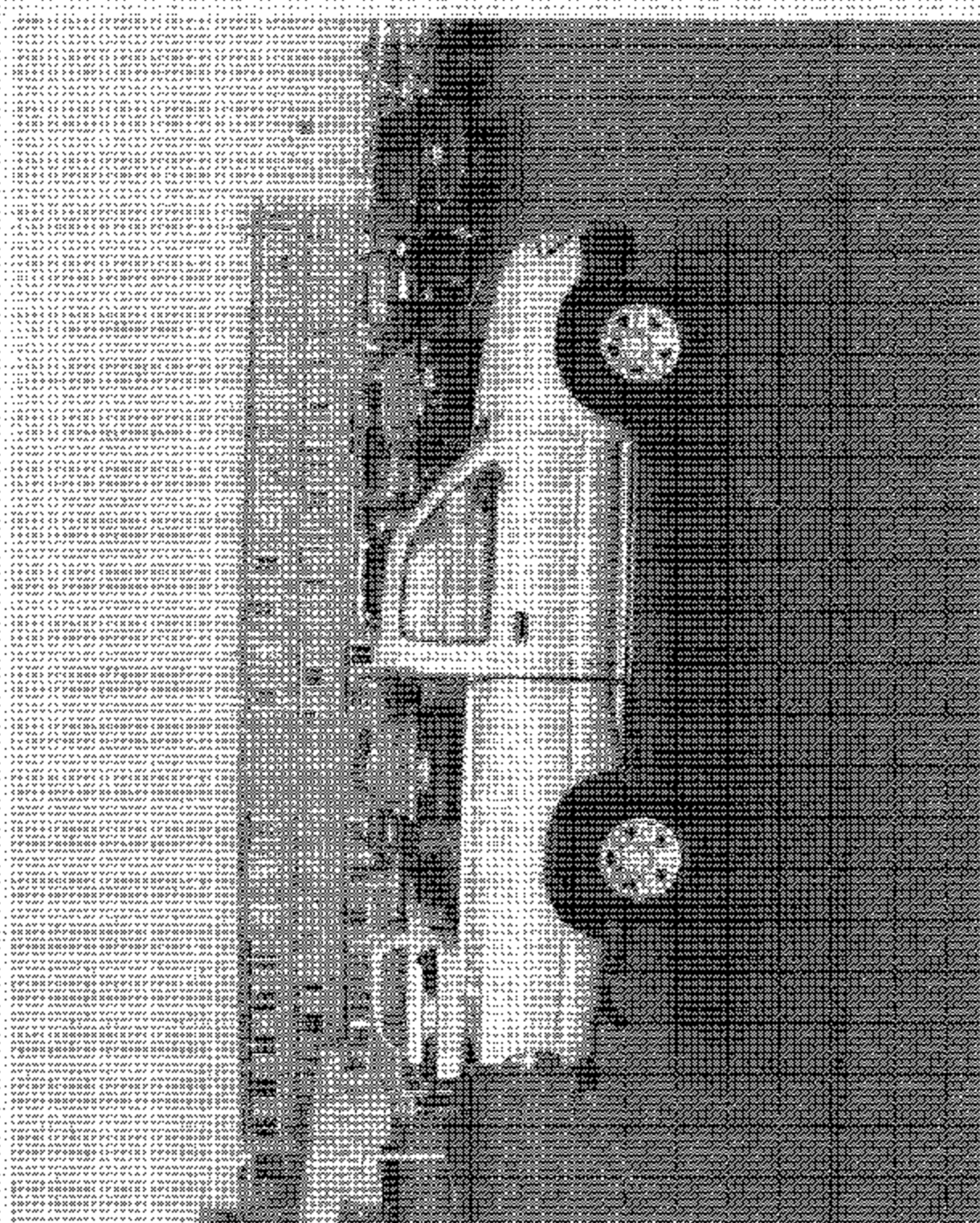


Figure 1. East-West View of Vehicle

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1918 Ford Model T

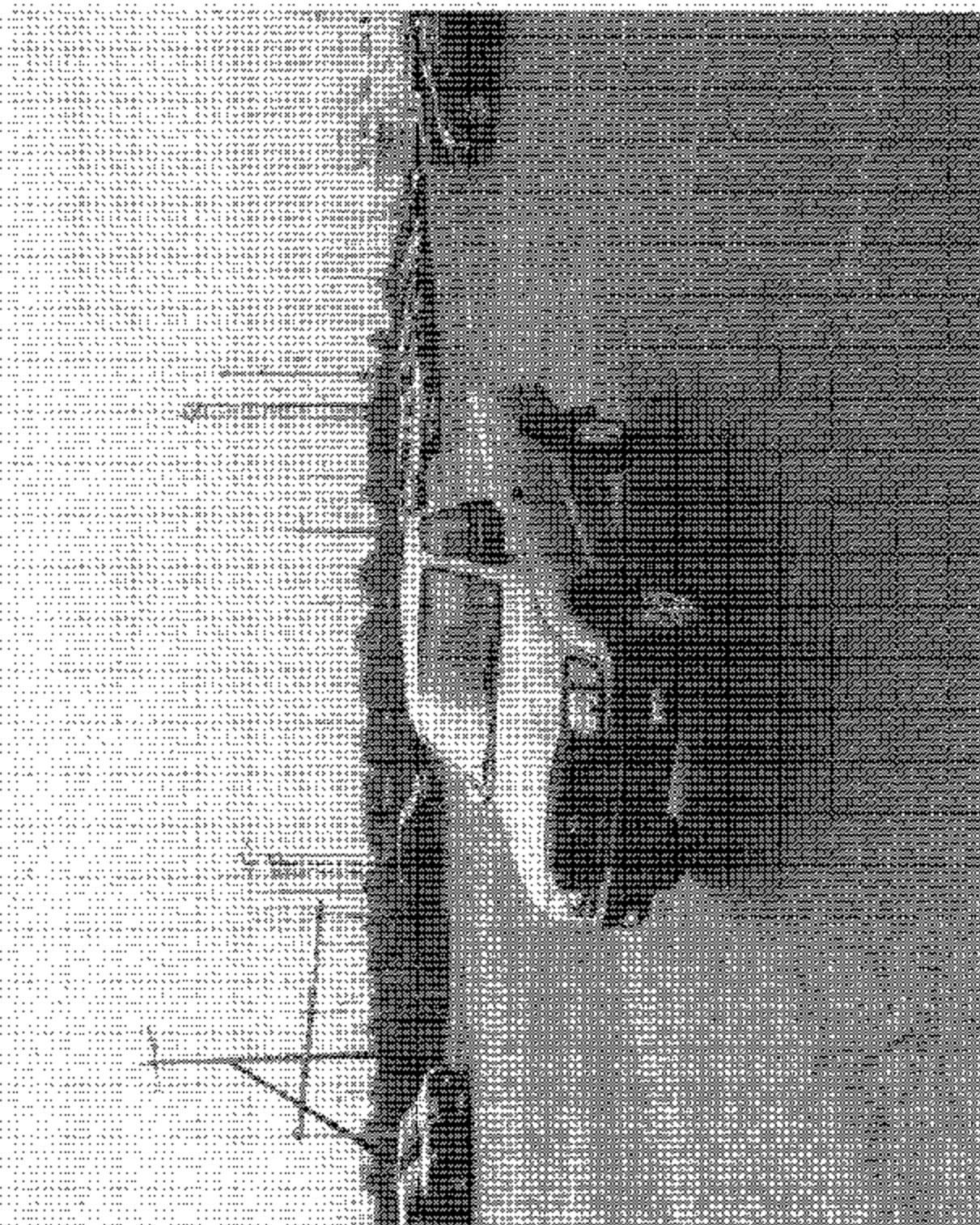


Figure 1. A PIONAVAL WITH DECOMPOSITIONAL DECOMPOSITION

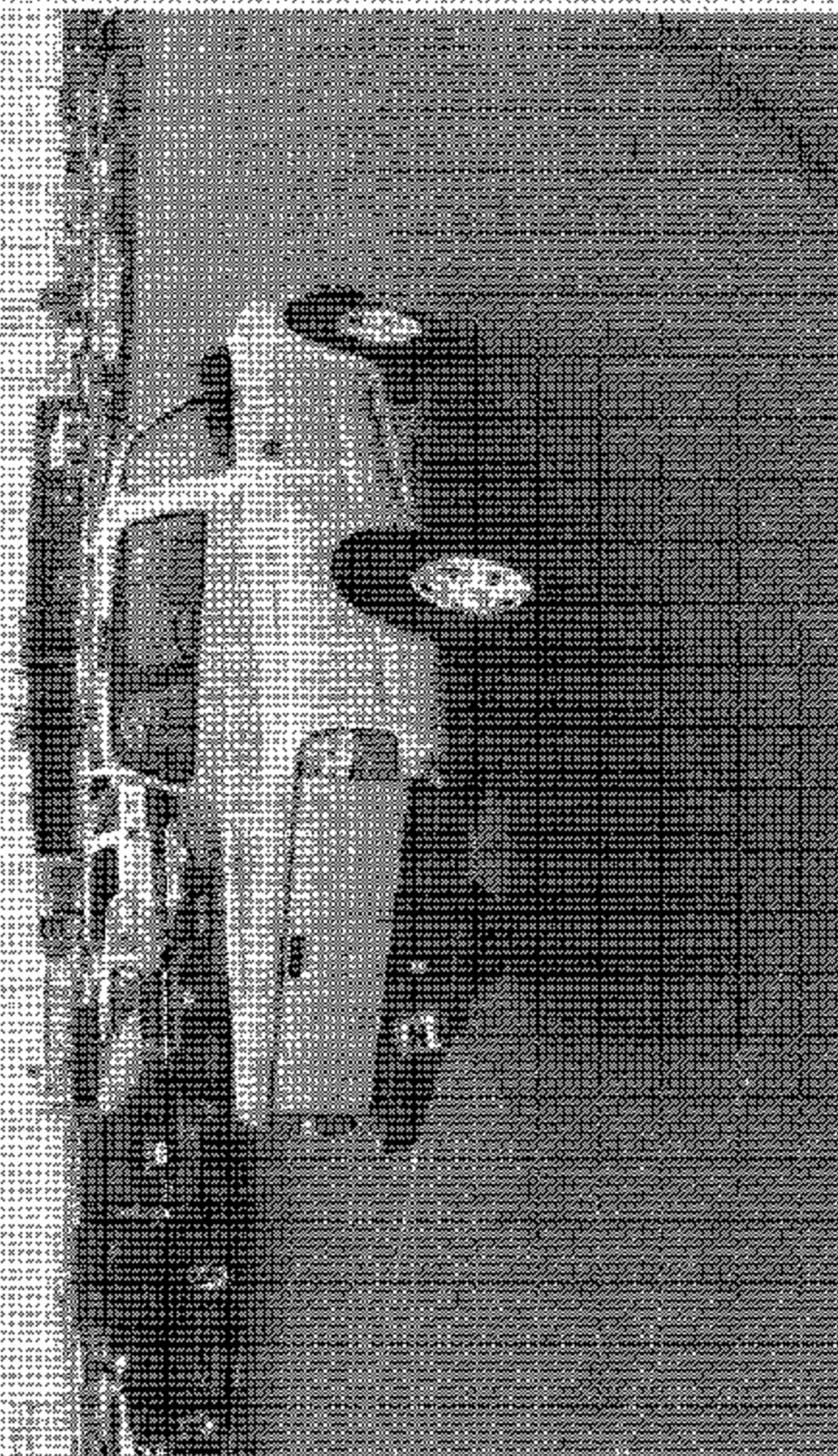


Figure 2: Side view from right side of vehicle

MADE BY TOYOTA MOTOR MANUFACTURING CALIFORNIA INC

DATE 09/02 GVWR 1920KG (4251LB)

GVWR FRT 1000KG (2200LB) WITH P205/75R15 TIRES

15X6JJ RIMS AT 200KPA (29PSI) COLD

RR 1135KG (2500LB) WITH P205/75R15 TIRES

15X6JJ RIMS AT 200KPA (29PSI) COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR
VEHICLE SAFETY AND THEFT PREVENTION STANDARDS IN EFFECT
ON THE DATE OF MANUFACTURE SHOWN ABOVE.

STENL42N632157419

TRUCK

R2N140L-1RMDKAB

C-TR 1C8/FZ10

A-TH A02A

W59



Figure 1. VEHICLE'S CERTIFICATION LABEL

MADE BY TOYOTA MOTOR MANUFACTURING CALIFORNIA, INC.

DATE 09/02 GVMR 1920KG (4250LB)

GAWR FRT 1000KG (2200LB) WITH P205/75R15 TIRES.

15X6JJ RIMS AT 200KPA (29PSI) COLD

RR 1135KG (2500LB) WITH P205/75R15 TIRES.

15X6JJ RIMS AT 200KPA (29PSI) COLD.

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR

VEHICLE SAFETY AND THEFT PREVENTION STANDARDS IN EFFECT

ON THE DATE OF MANUFACTURE SHOWN ABOVE.

STEN142M632157419

TRUCK

R2N140L-1RHDKAB

C/TR 1CB/FZ10

A/TM A02A7

W59



Figure 1 VEHICLE'S TIRE INFORMATION LABEL

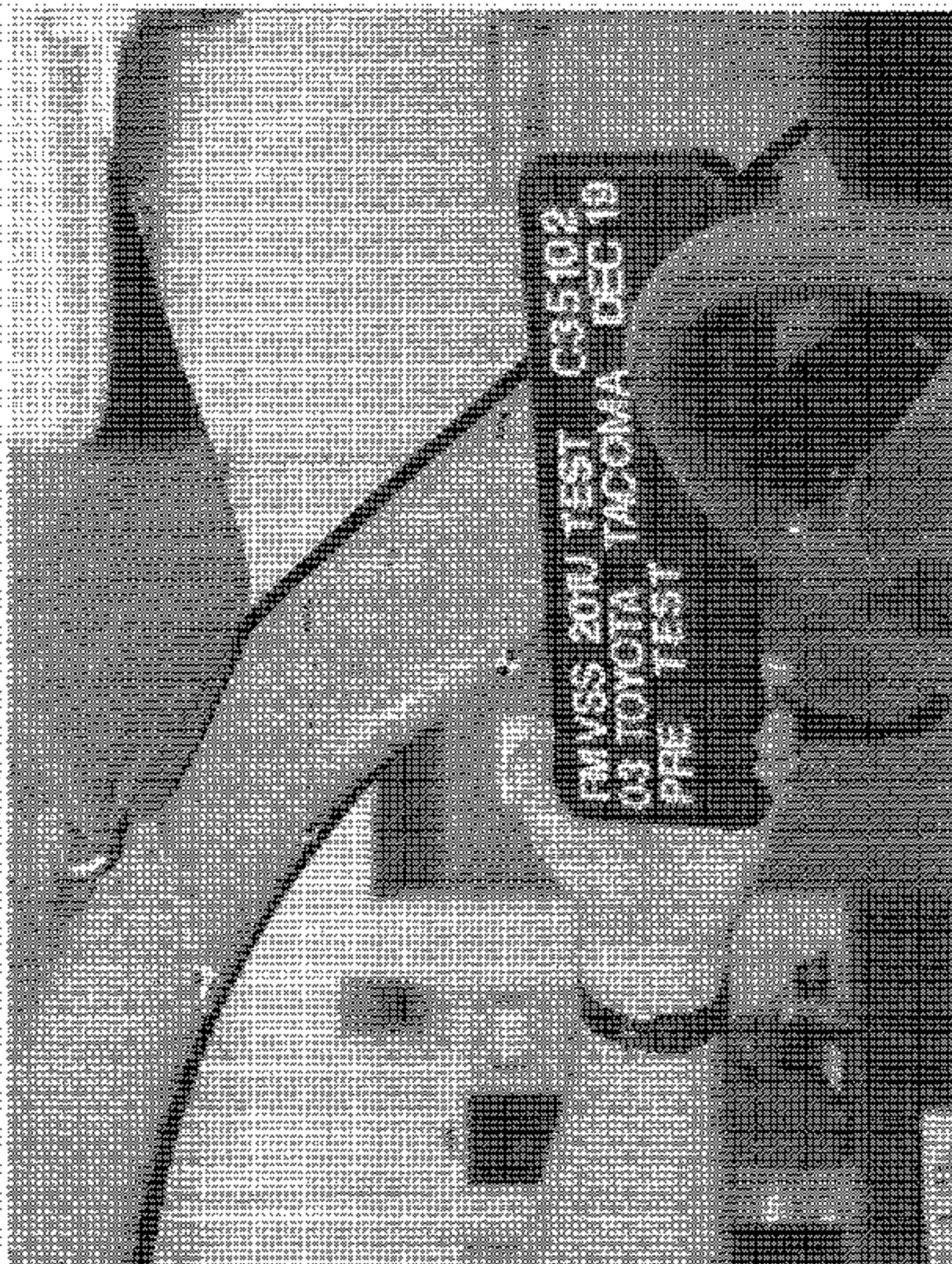


Figure 1. PRE-TEST DETERMINING A HILK

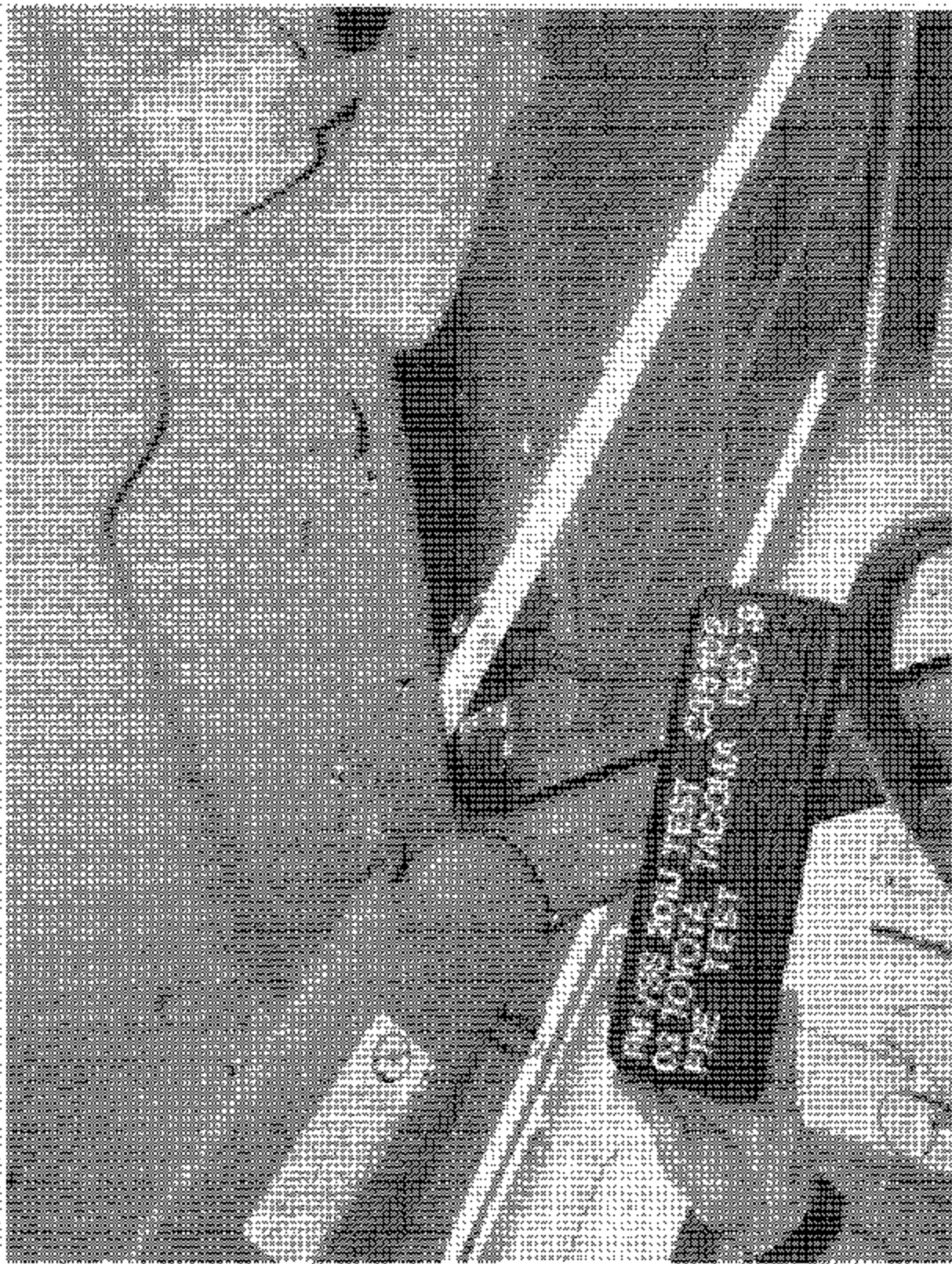


FIGURE 1. THE TEST ROOM CHAIRS.

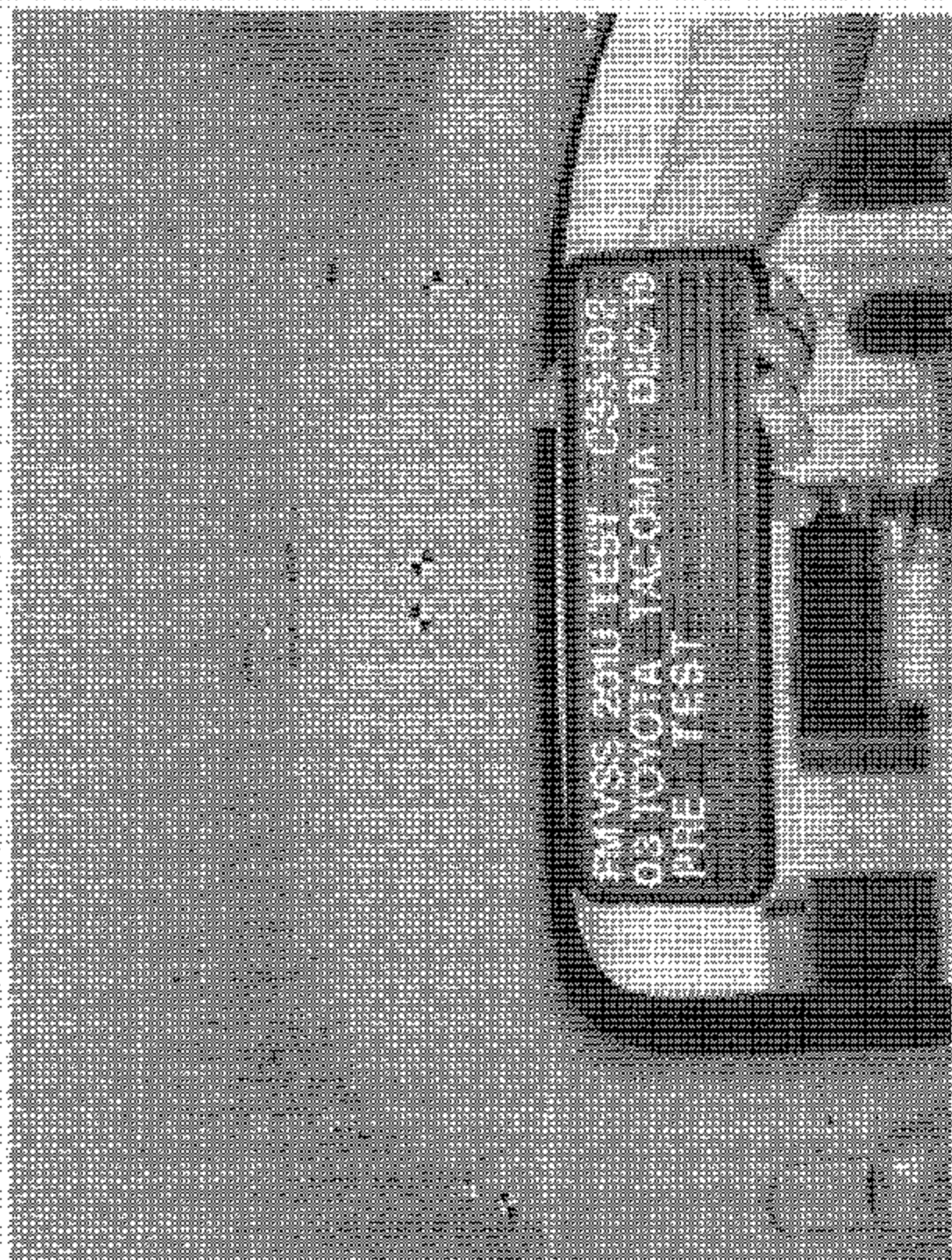


Figure 1. PRE-TEST DRIVE OF SIDE-SIDE CRASH

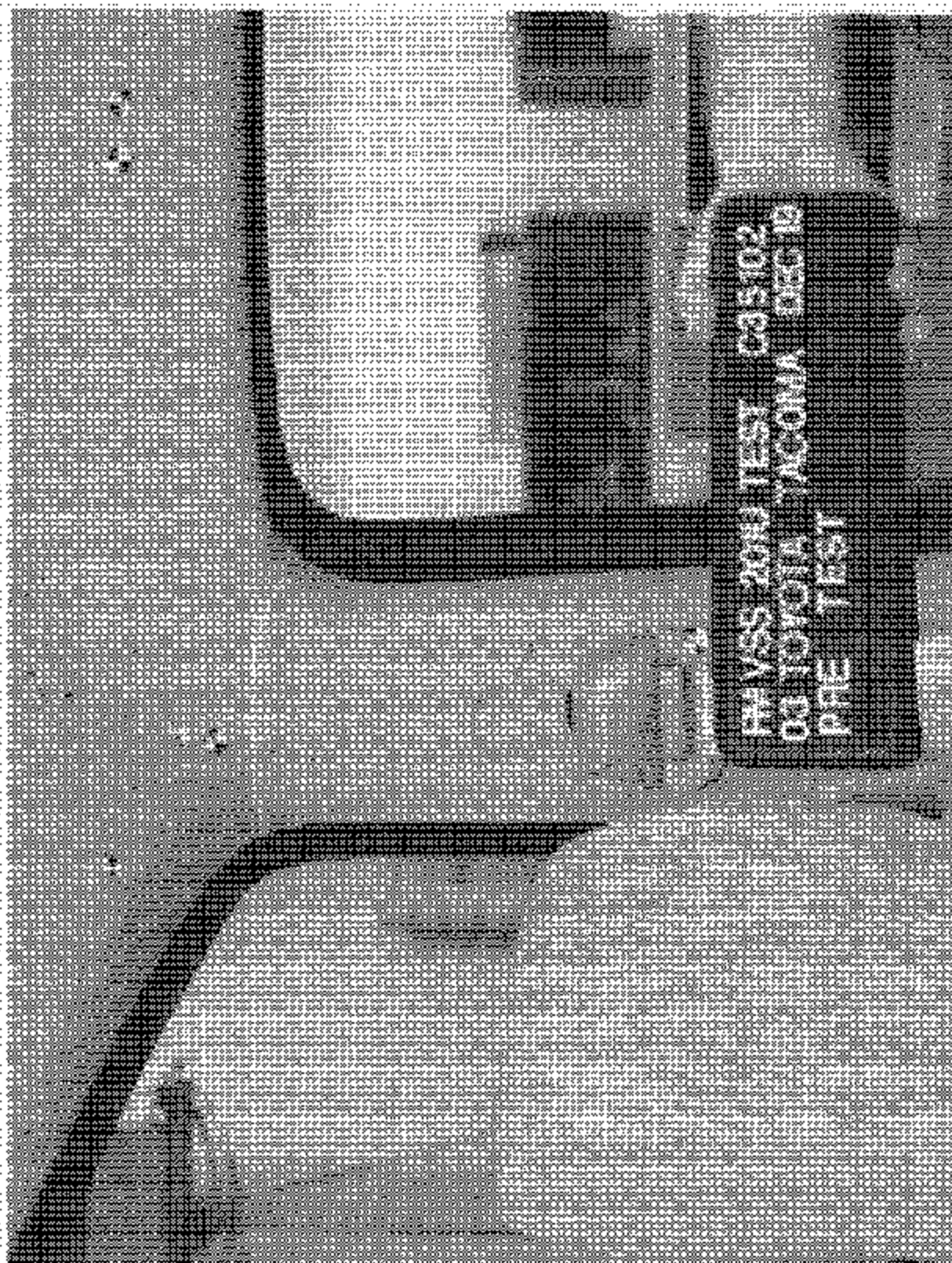


Figure 1: Pre-Test Driver Side Rear View

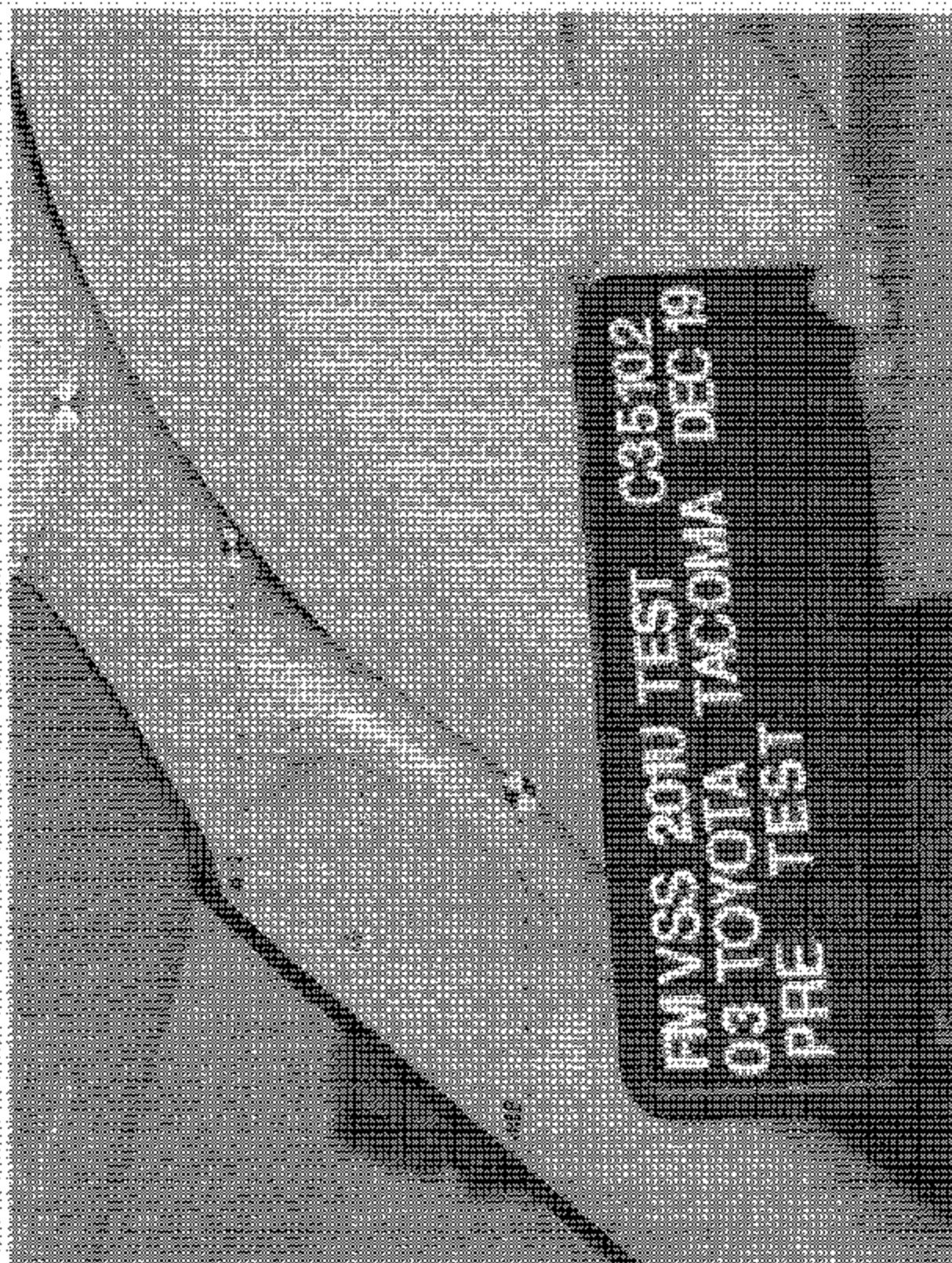
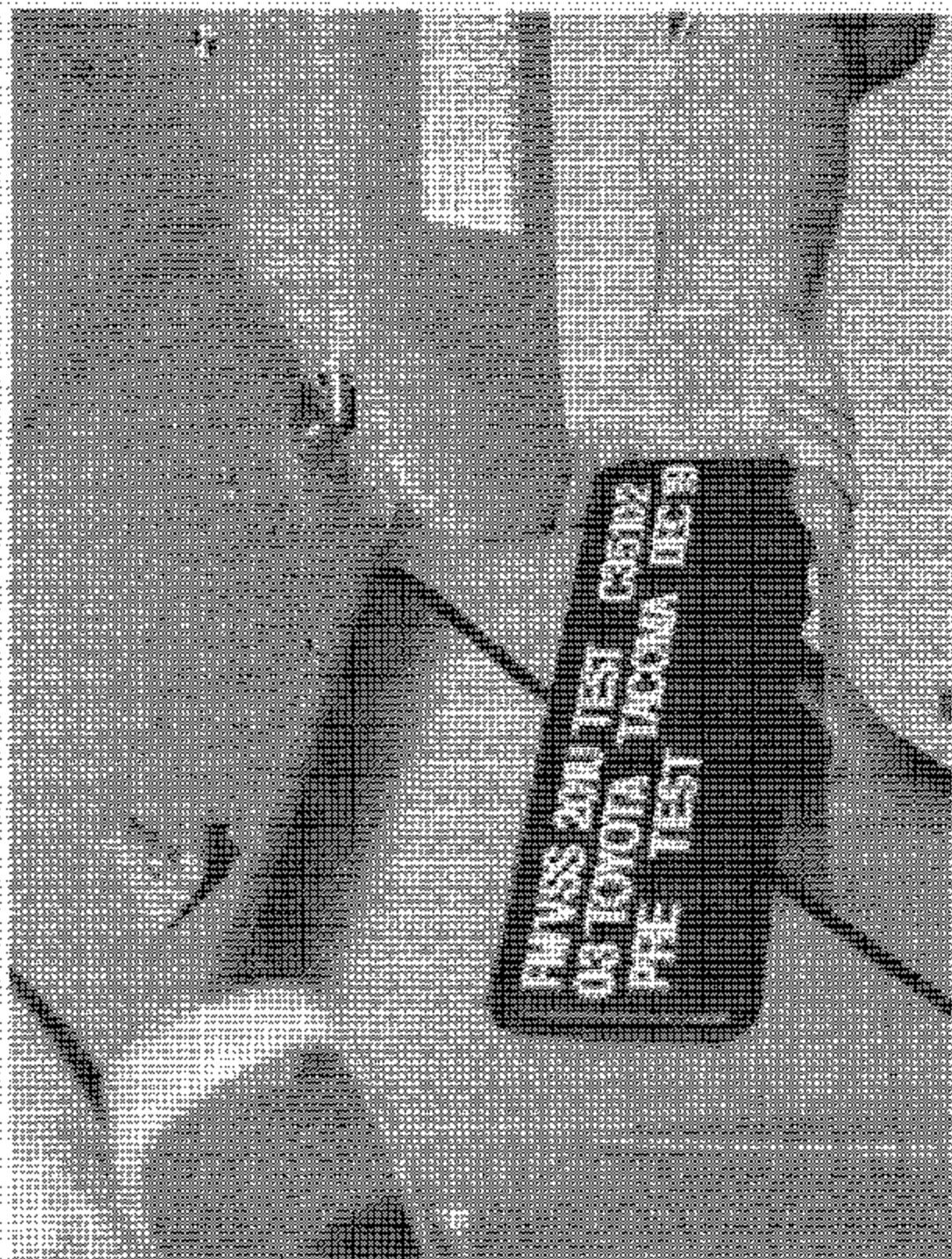


Figure 1: FMVSS 2010 TEST C35102



ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

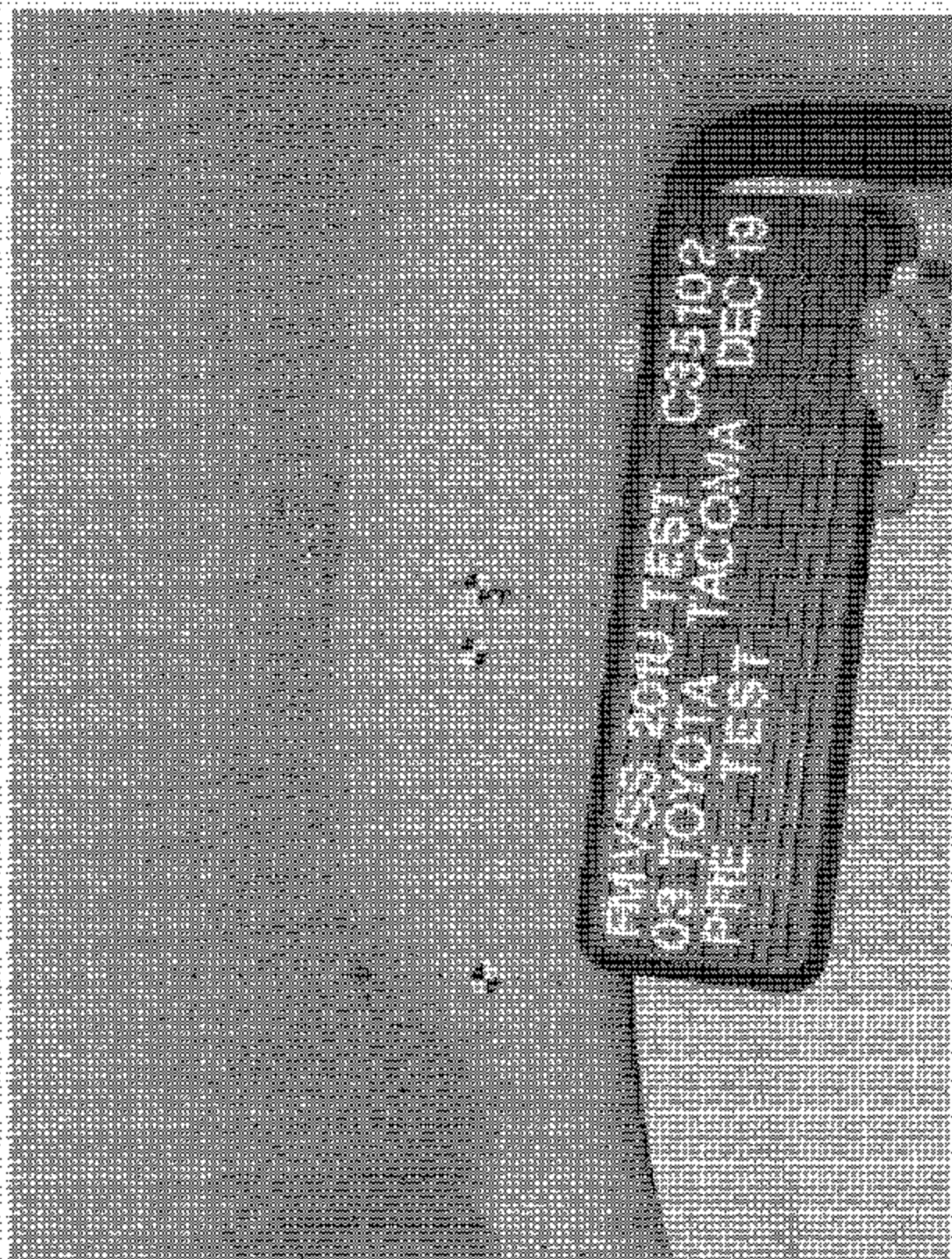
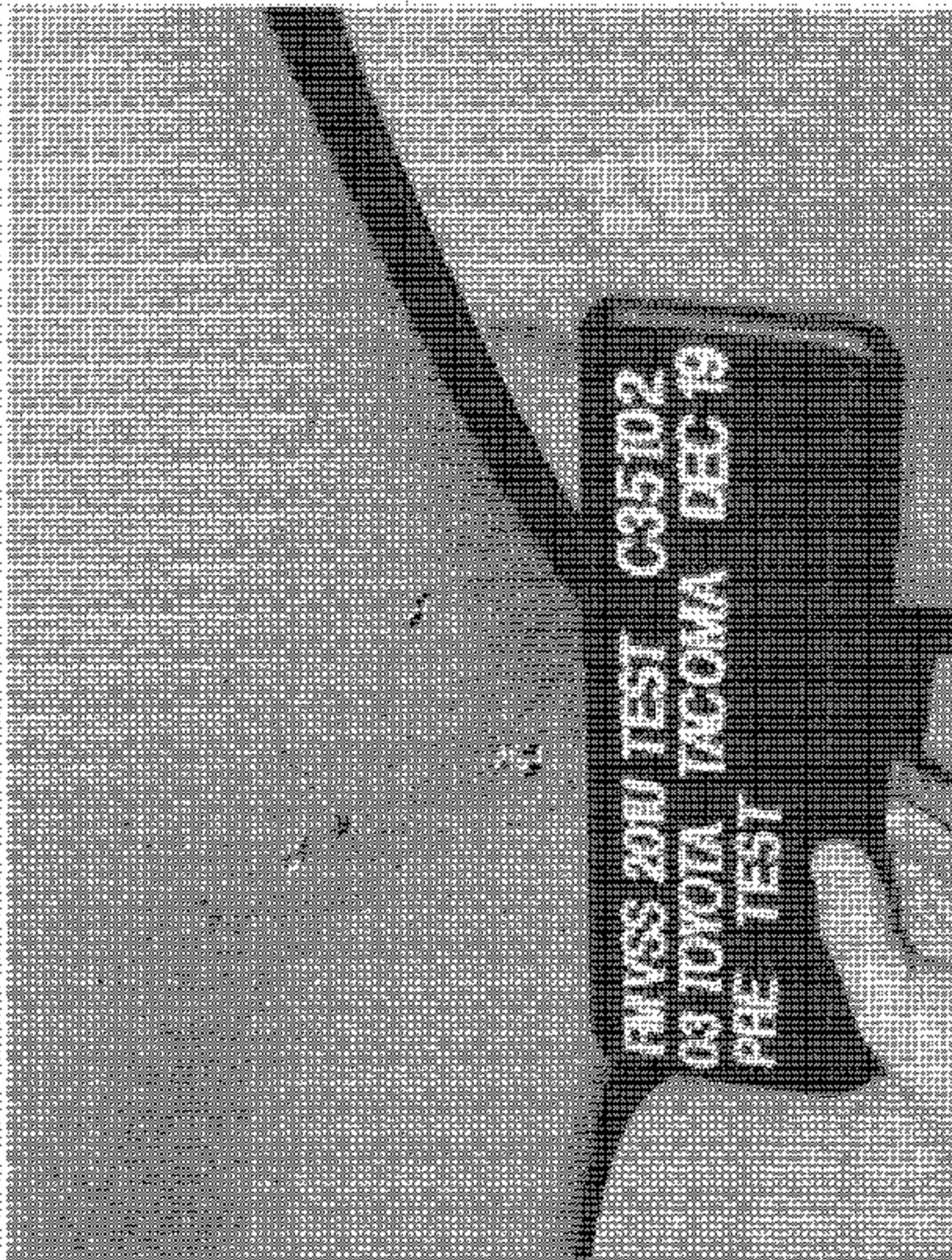


FIGURE 1. PRE-TEST PASSING SIDE VIEW



2011 TOYOTA TACOMA DEC 19

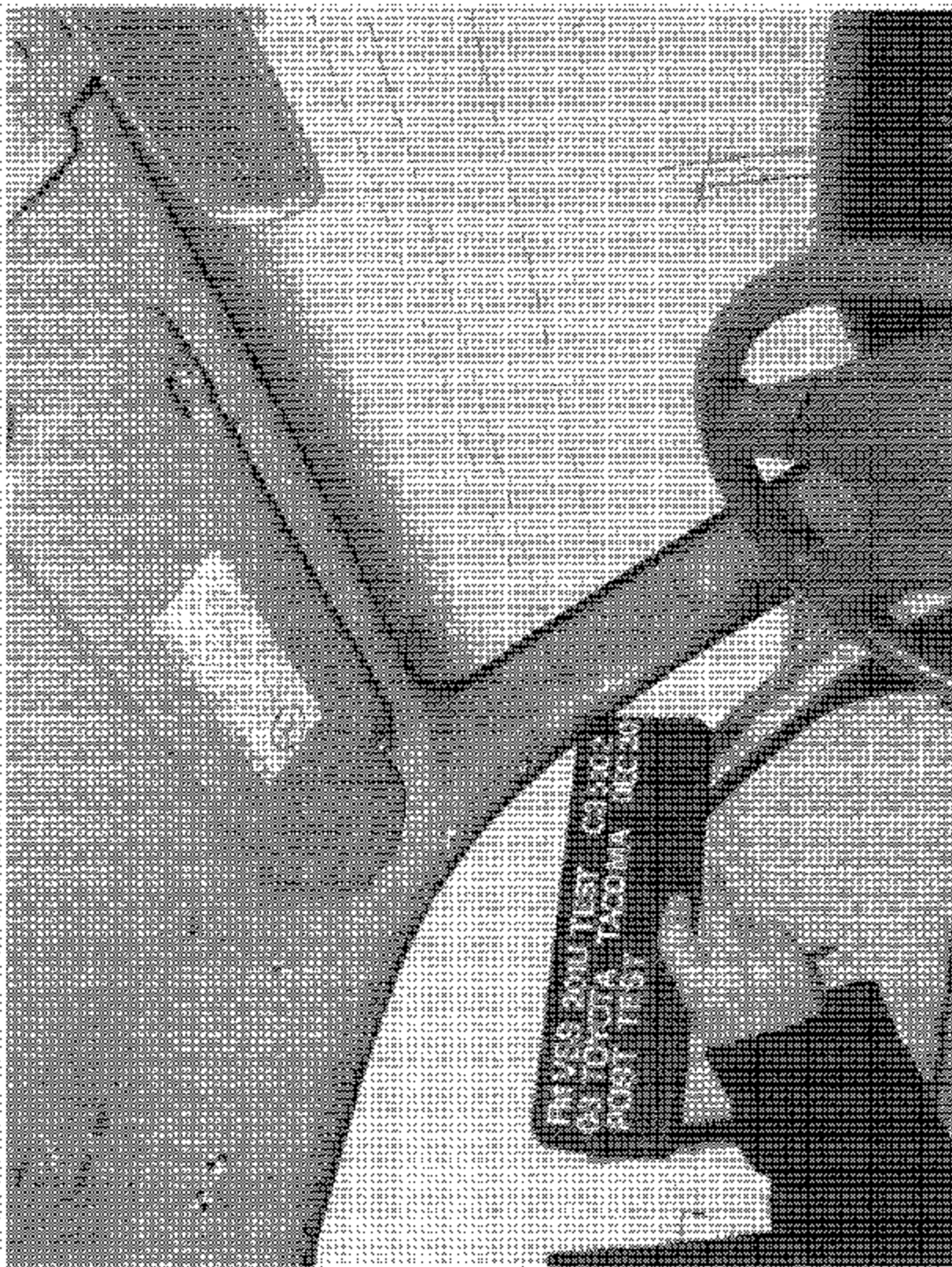


Figure 1. POST-TENSIONED SIDE-A-PLEAN.



FIGURE 1. JAN 1961. JAN 1961. JAN 1961.

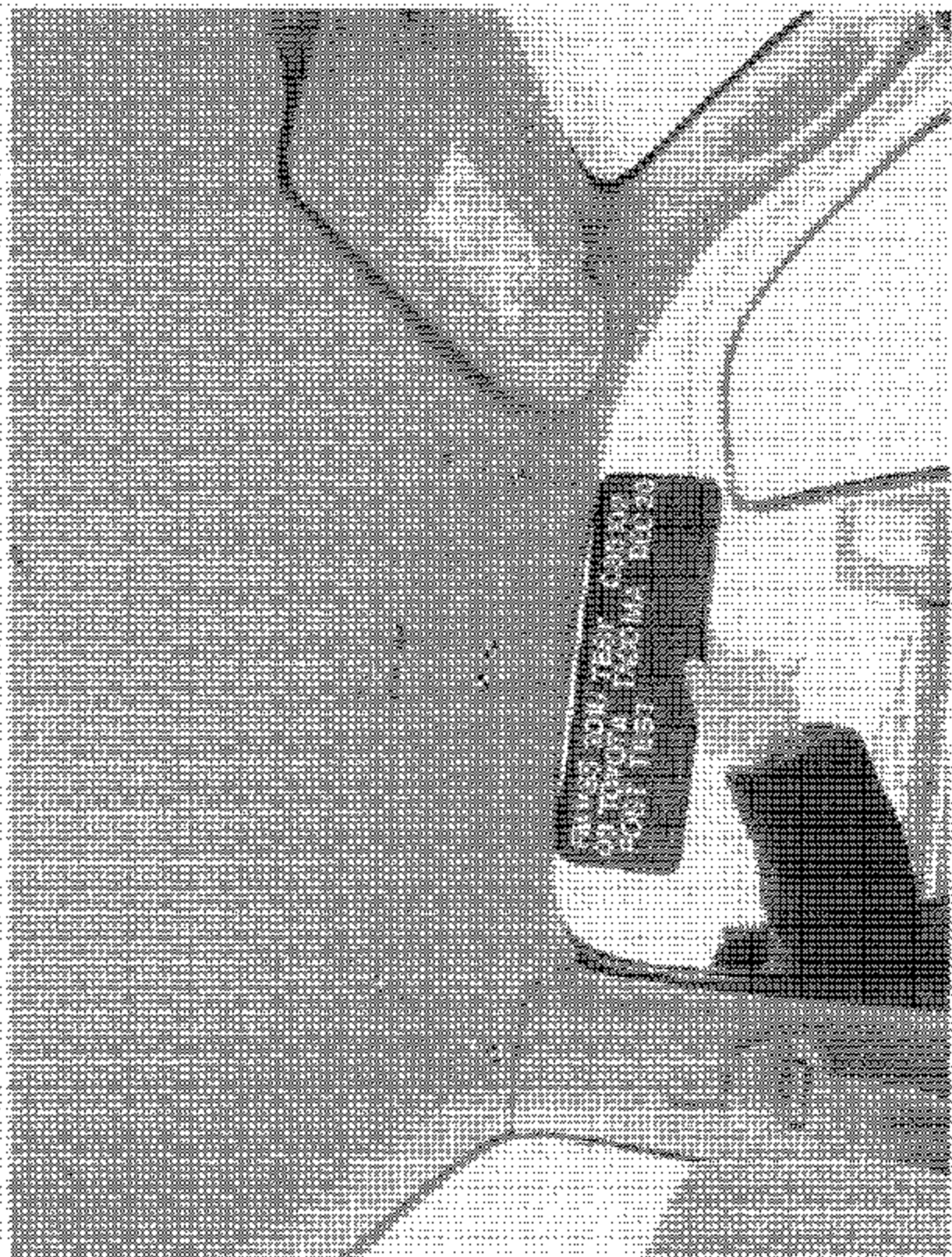


Fig. 100. PUSH YOUR TEST CARDS INTO THE MACHINE

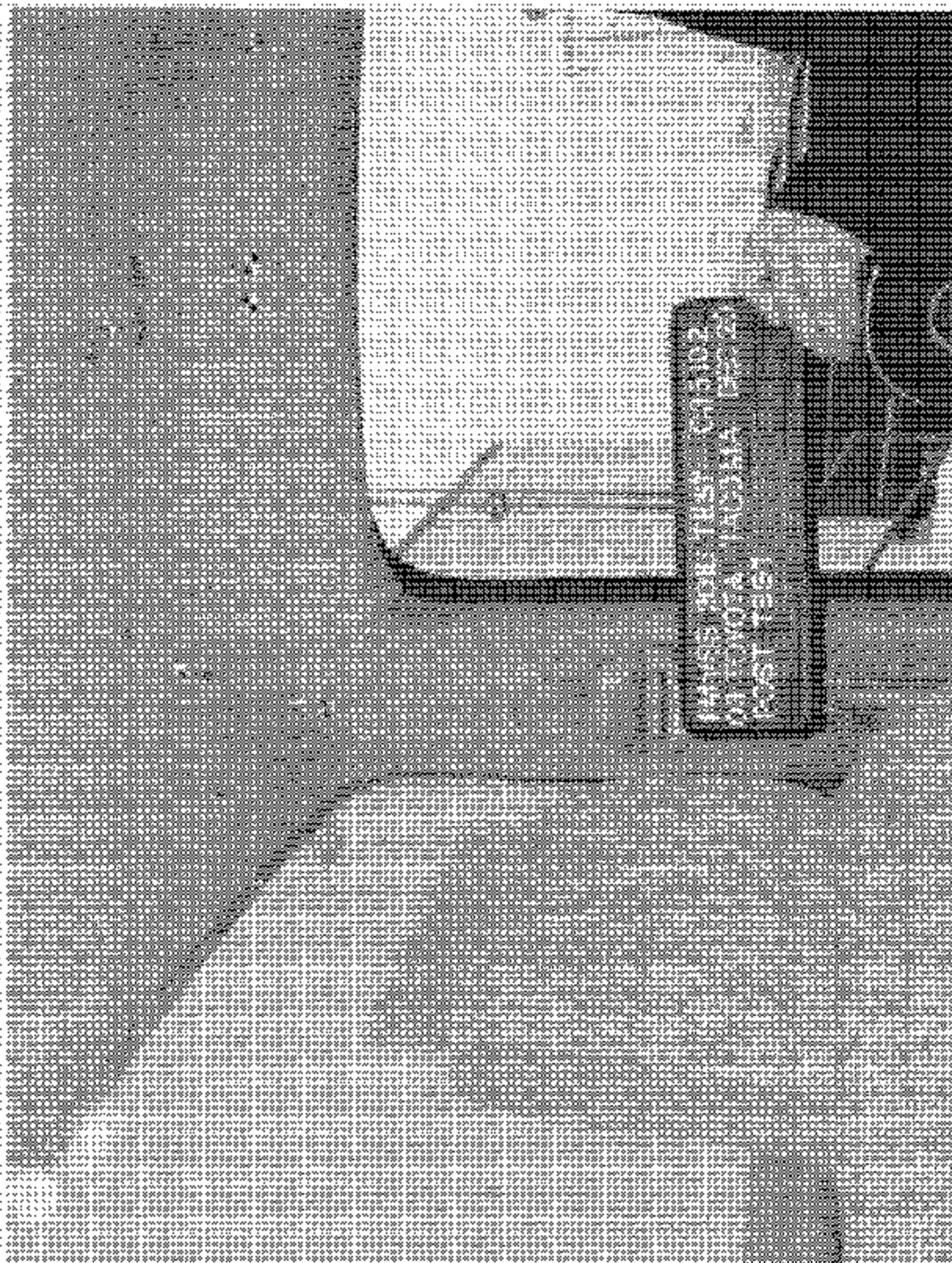


Figure 1. Life Science Equipment in the Laboratory.

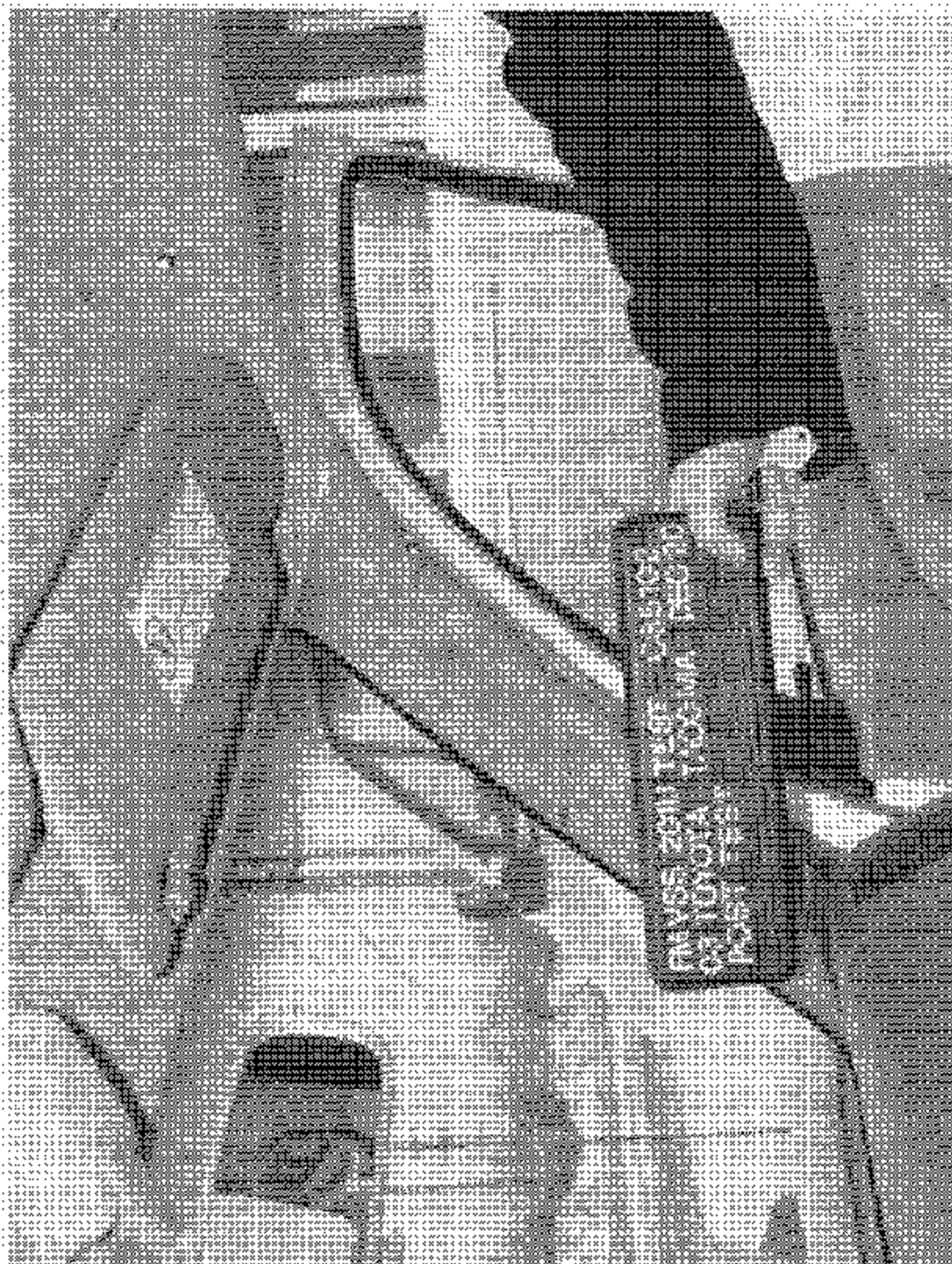


Figure 1. NIMH Testing and Assessment Center.

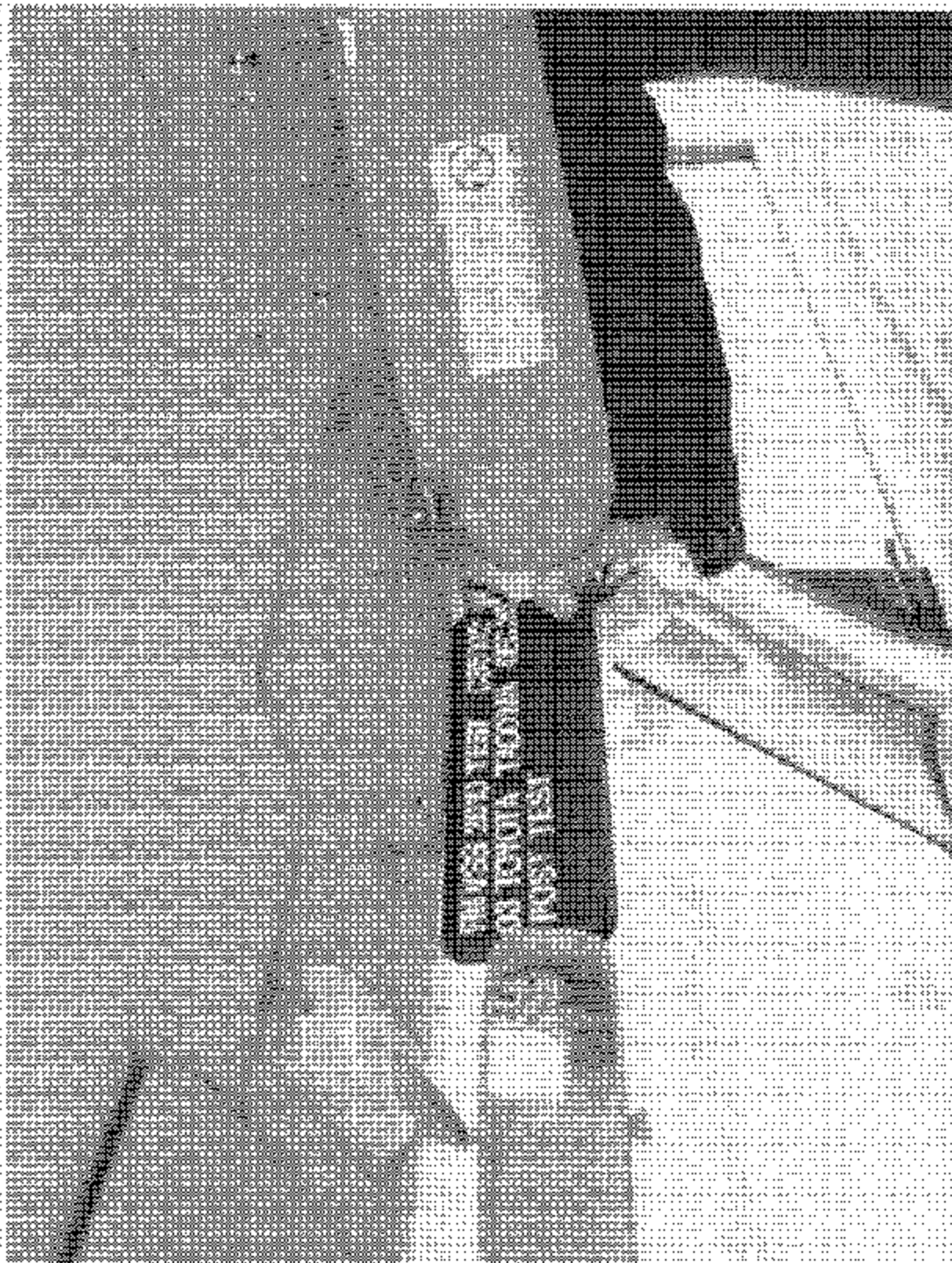


Figure 1. INVESTIGATION IN INDIA TODAY TEST

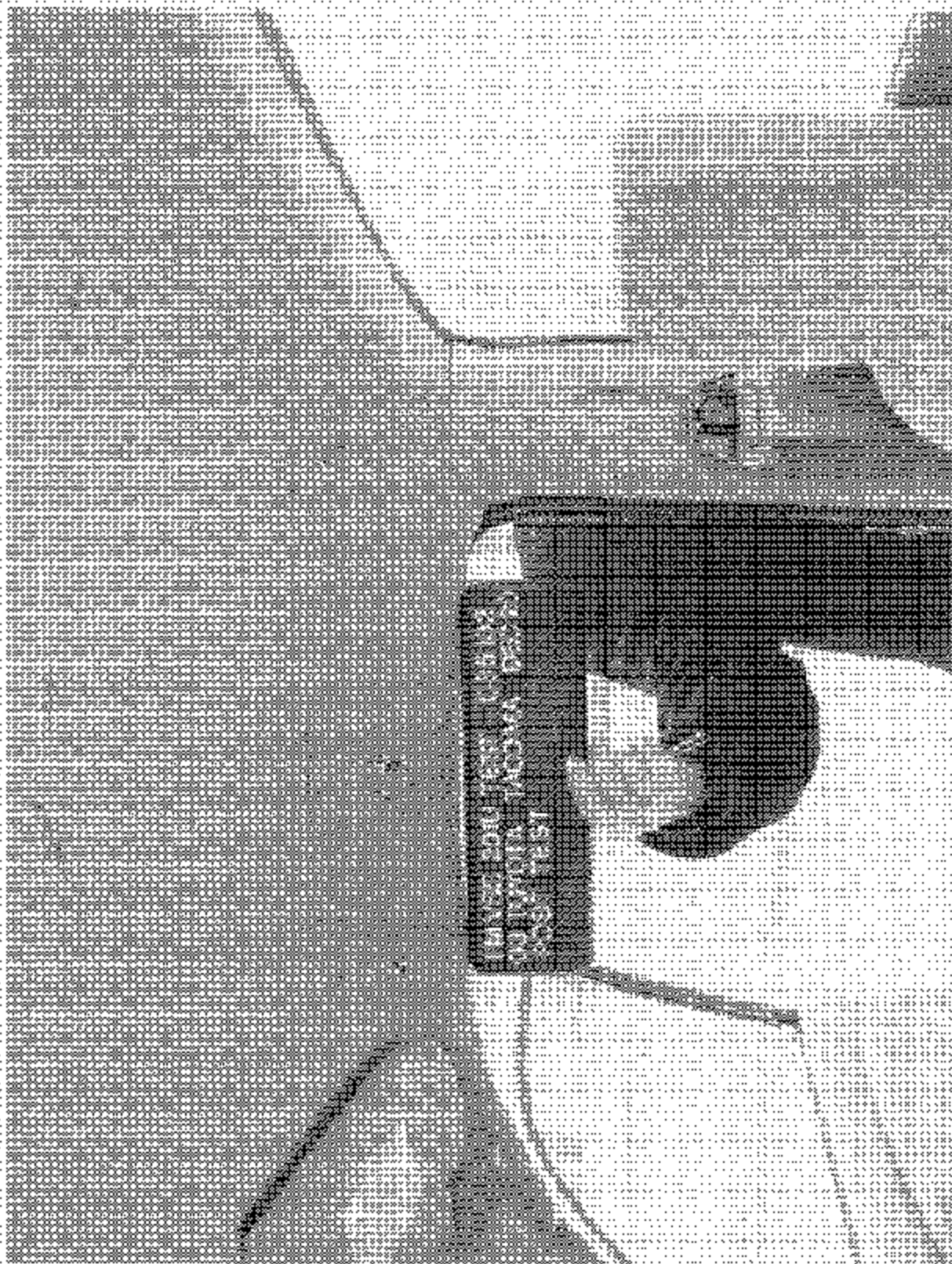


FIGURE 1. PASSENGER SEAT SIDE VIEW

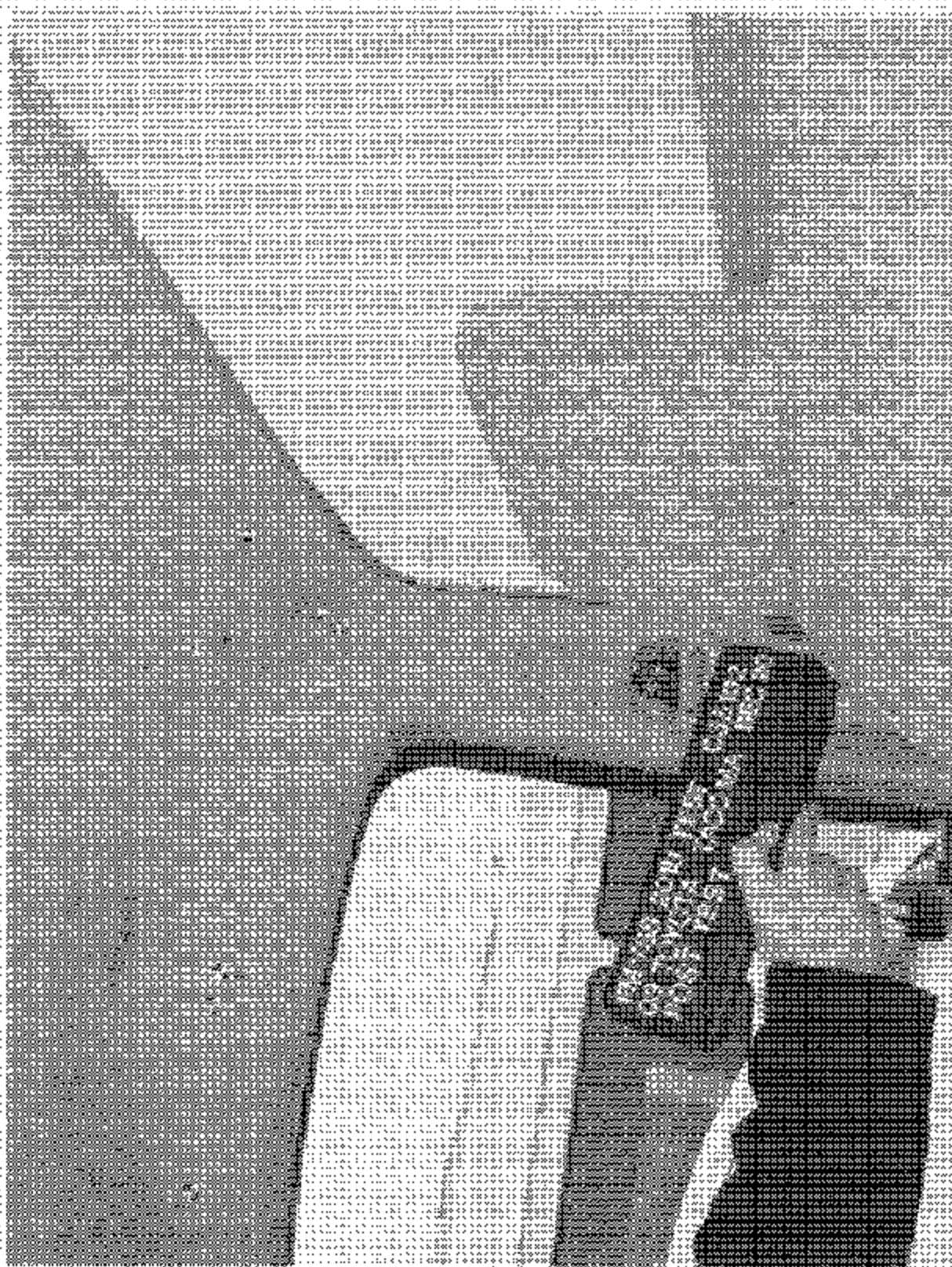


Figure 1. A woman in a dark dress with a large, light-colored collar.

APPENDIX B

PART 572L PERFORMANCE CALIBRATION IN SUPPORT OF VEHICLE SAFETY COMPLIANCE TESTING FOR OCCUPANT PROTECTION IN INTERIOR IMPACT

Appendix B contains the results from certification tests performed on the Free Motion Headforms utilized in this test program. The results indicate that the headforms meet all of the performance specifications given in 49 CFR Part 572 Subpart L.

The tests were conducted at the Dummy Certification Test Facility of Veridian Engineering. A summary of the test results are included in this Appendix.

PART 5721
HEAD DROP PRE-TEST

MANUFACTURER	FIRST TECHNOLOGIES SAFETY SYSTEMS	
SERIAL NUMBER:	0642	
CALIBRATION DATE:	NOVEMBER 22, 2002	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	20
RELATIVE HUMIDITY	10% to 70%	52
PEAK RESULTANT ACCELERATION	225 Gs to 375 Gs	232.0
PEAK LATERAL ACCELERATION	15 Gs Maximum	6.9
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

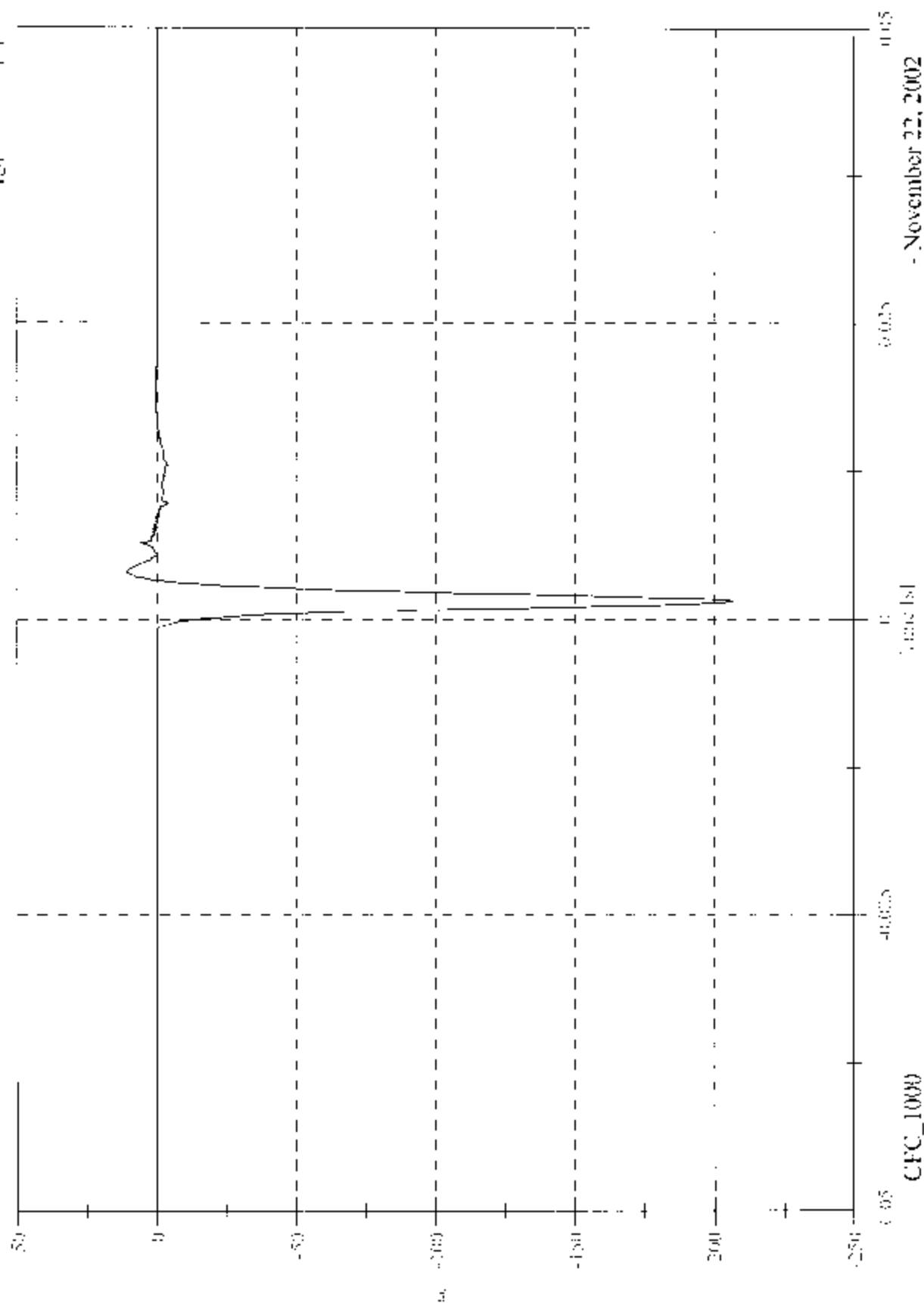
ID. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J74876	9-02	3-03
2 - LATERAL	ENDEVCO	7264-2000T	J33030	9-02	3-03
3 - VERTICAL	ENDEVCO	7264-2000T	J31003	9-02	3-03

REMARKS:

FMVSS 201C - Head Form Calibration Drops

Max: 10.6 [g] at 0.004 [s]
 Min: -206.9 [g] at 0.002 [s]

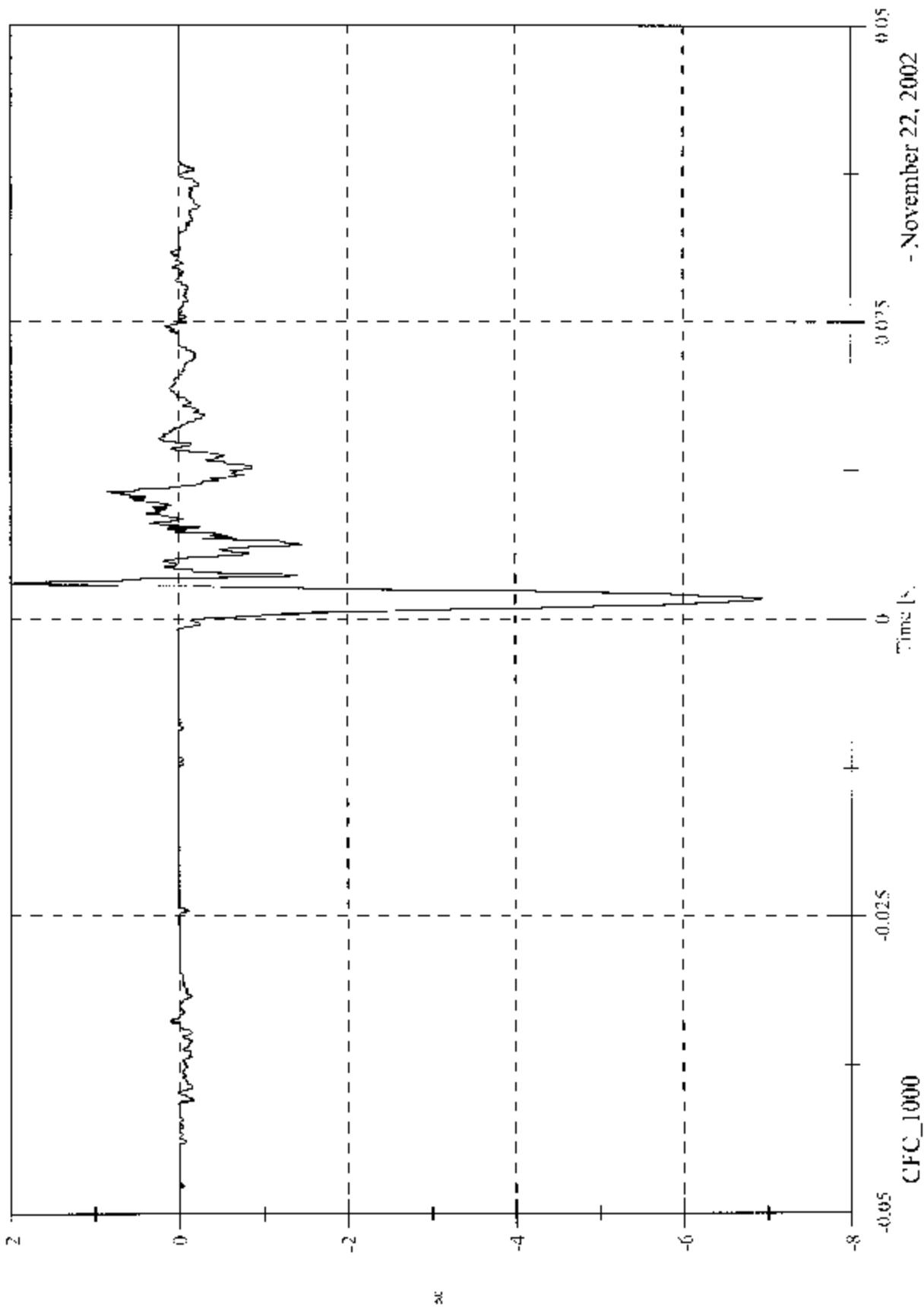
Headform X Acceleration



FMVSS 201U - Head Form Calibration Drops

Headform Y Acceleration

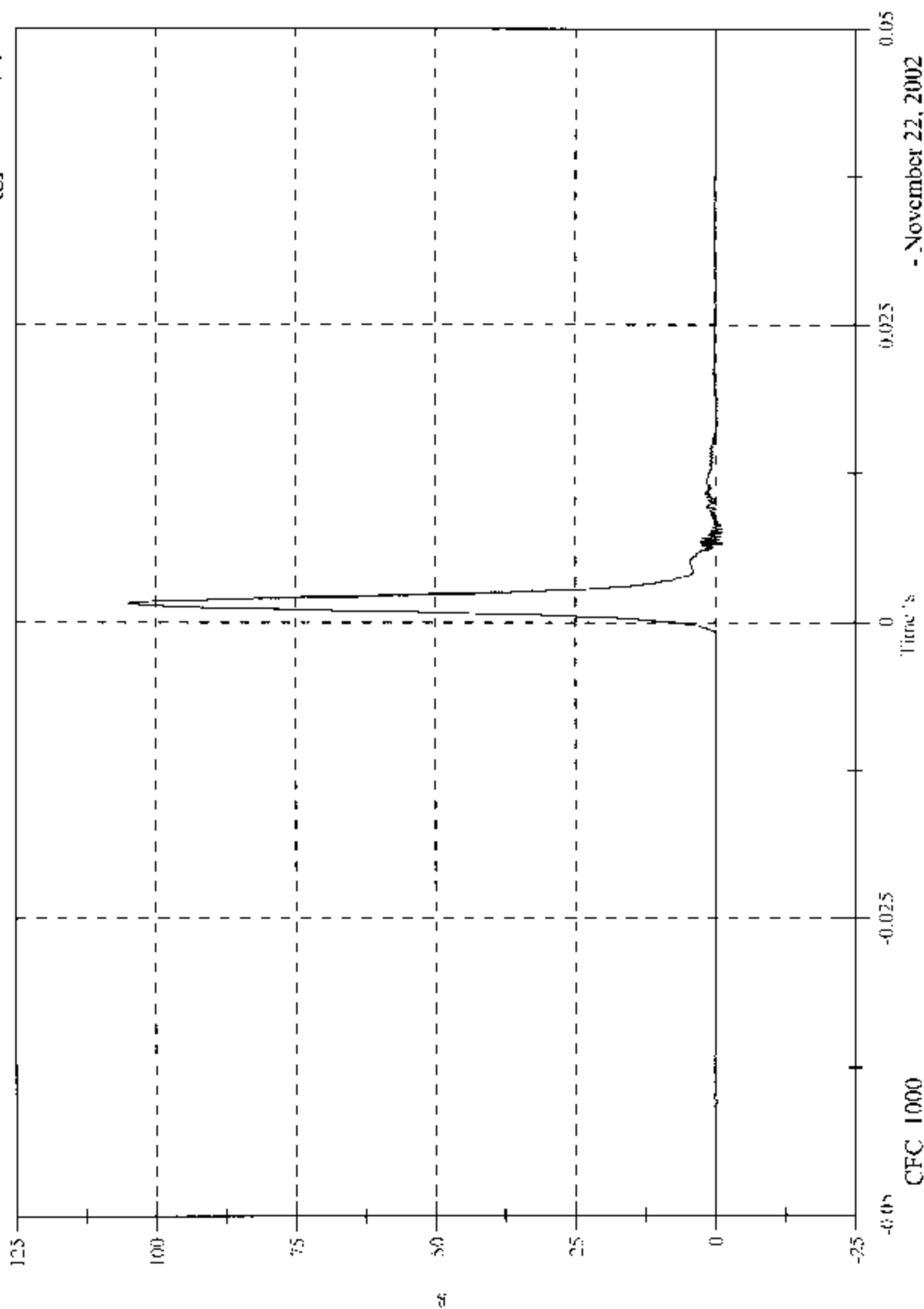
Max: 2.0 [g] at 0.003 [s]
Min: -6.9 [g] at 0.002 [s]



FMVSS 201U - Head Form Calibration Drops

Max: 104.8 [g] at 0.002 [s]
Min: -1.3 [g] at 0.007 [s]

Headform Z Acceleration

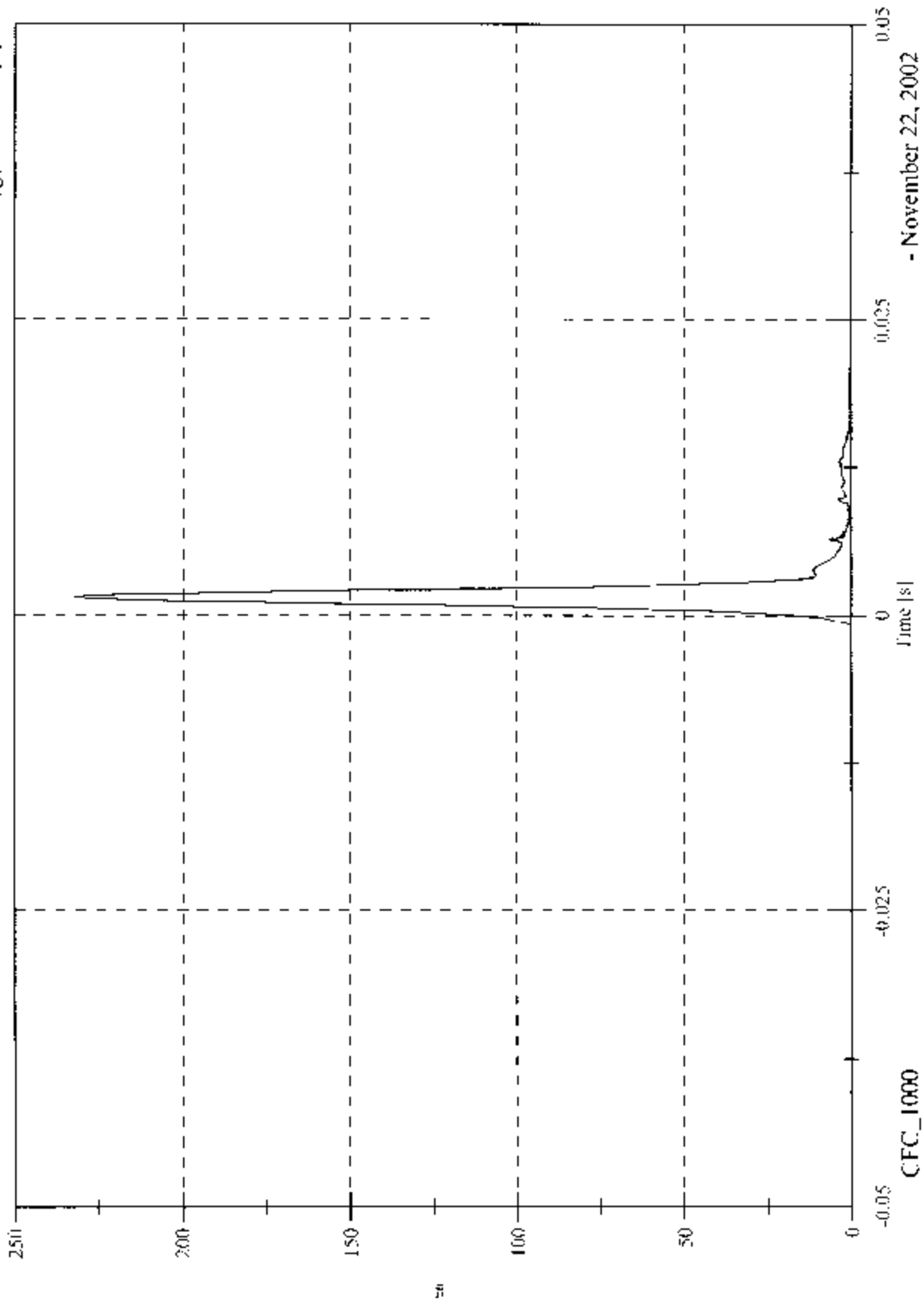


- November 22, 2002

FMVSS 201U - Head Form Calibration Drops

Max: 232.0 [g] at 0.002 [s]
 Min: 0.0 [g] at -0.030 [s]

Headform Resultant



- November 22, 2002

PART 572L
HEAD DROP PRE-TEST

MANUFACTURER:	FIRST TECHNOLOGIES SAFETY SYSTEMS	
SERIAL NUMBER:	805	
CALIBRATION DATE:	NOVEMBER 22, 2002	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	20
RELATIVE HUMIDITY	10% to 70%	32
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	255.4
PEAK LATERAL ACCELERATION	15 Gs Maximum	9.5
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

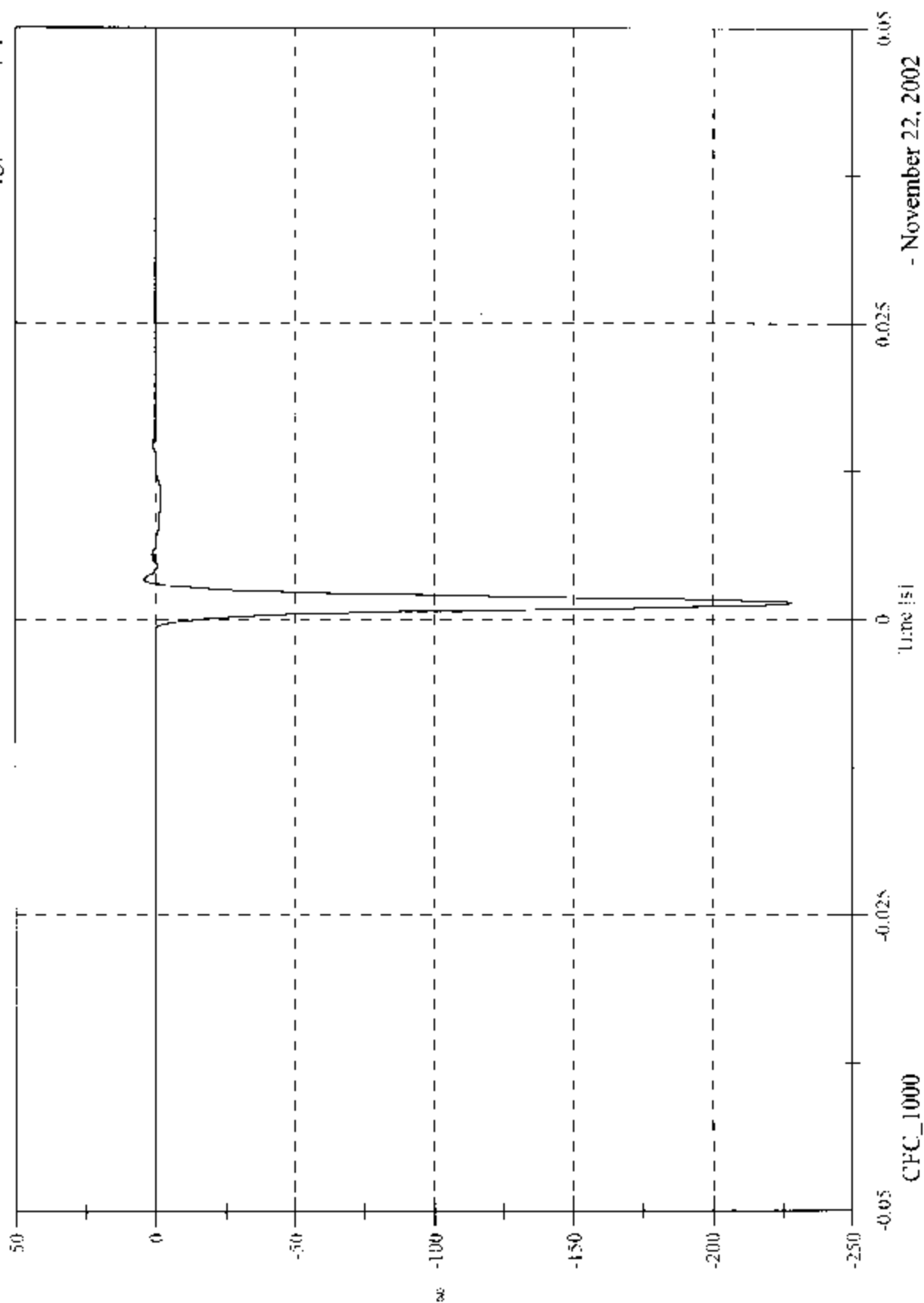
ID NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J38127	9/02	3/03
2 - LATERAL	ENDEVCO	7264-2000T	J37980	9/02	3/03
3 - VERTICAL	ENDEVCO	7264-2000T	J37854	9/02	3/03

REMARKS:

FMVSS 201C - Head Form Calibration Drops

Max: 4.1 |g| at 0.003 [s]
Min: -228.0 [g] at 0.001 [s]

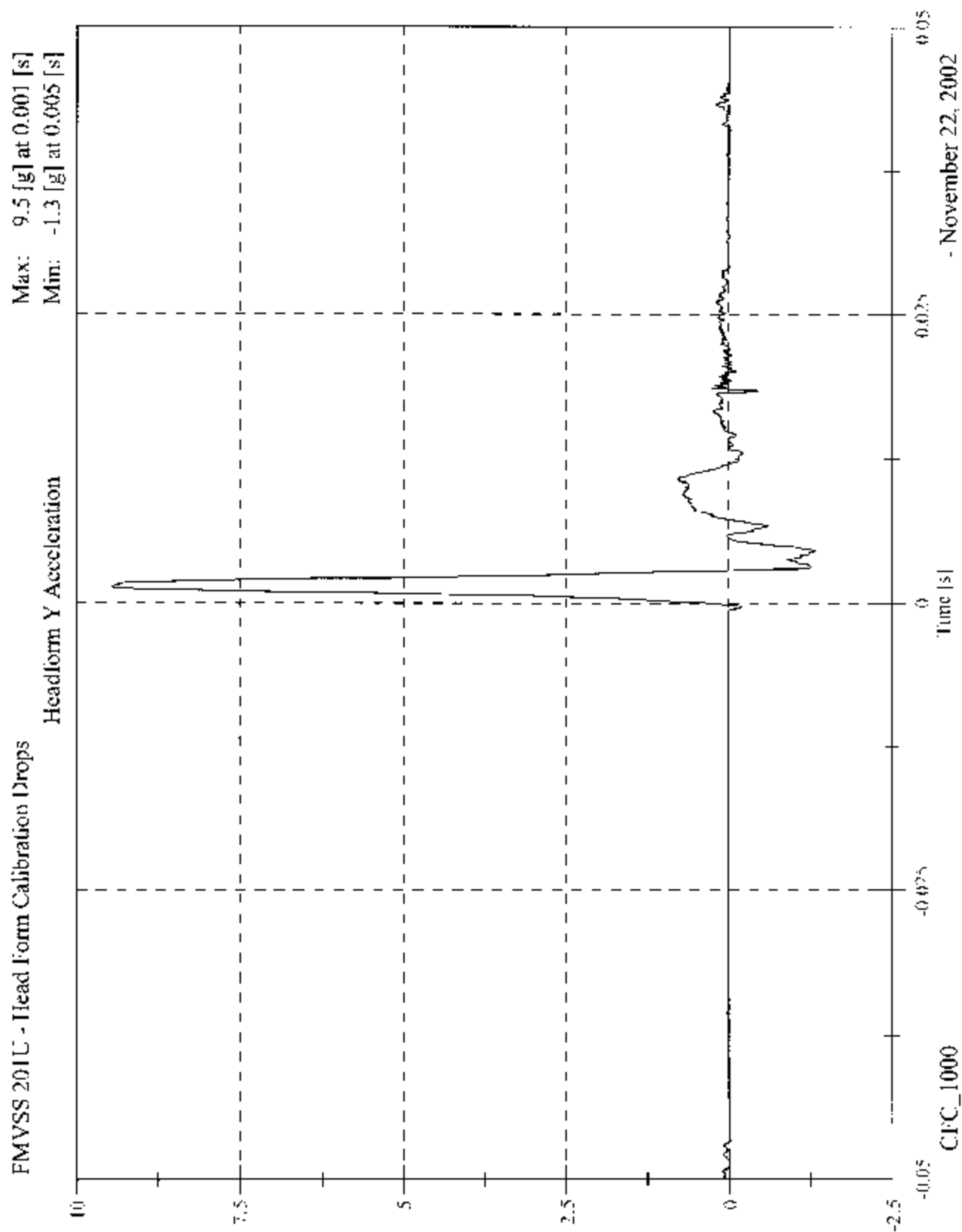
Headform X Acceleration



CPC_1000

Time [s]

- November 22, 2002

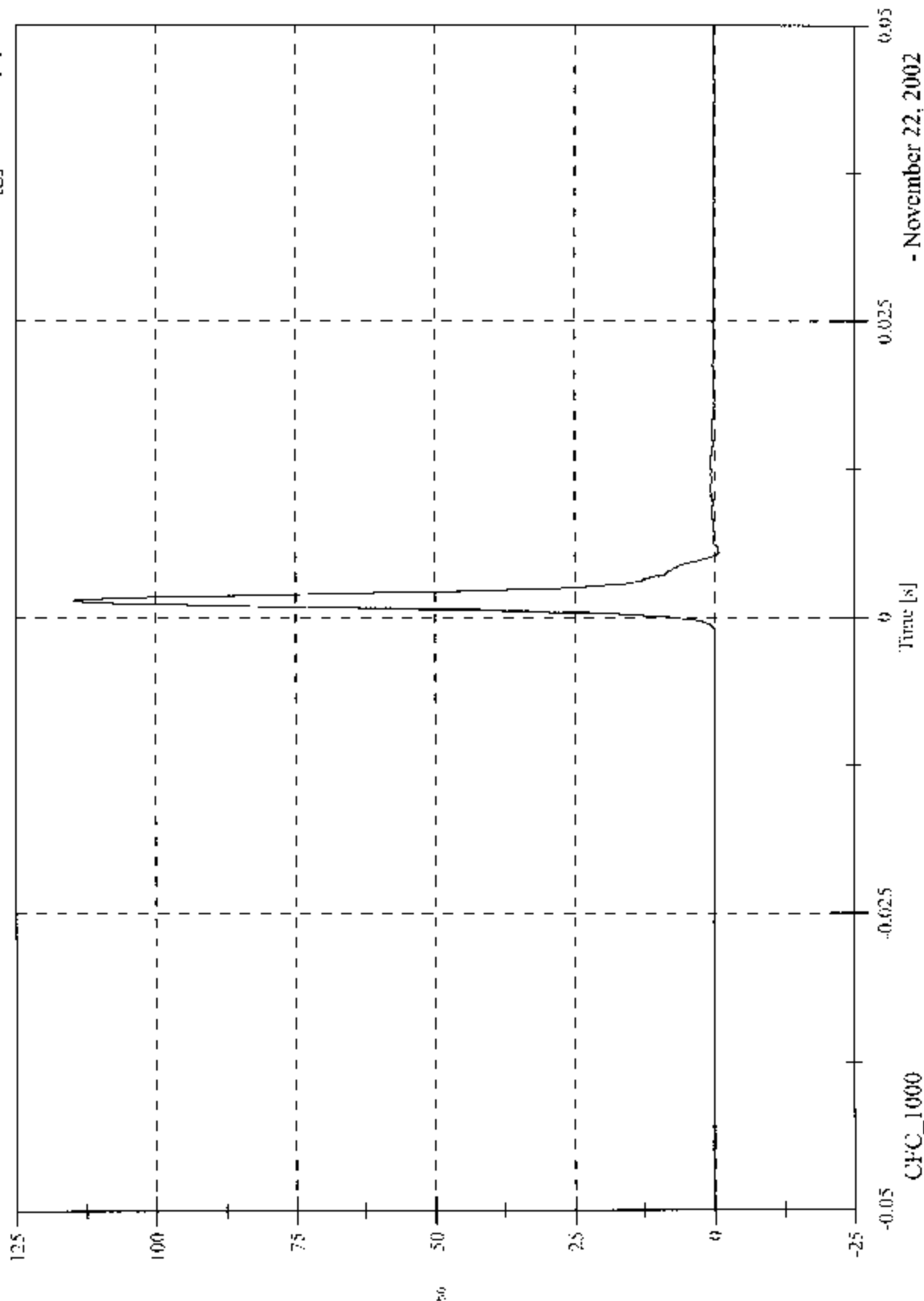


- November 22, 2002

FMVSS 201U - Head Form Calibration Drops

Max: 114.8 [g] at 0.001 [s]
Min: -0.9 [g] at 0.005 [s]

Headform Z Acceleration

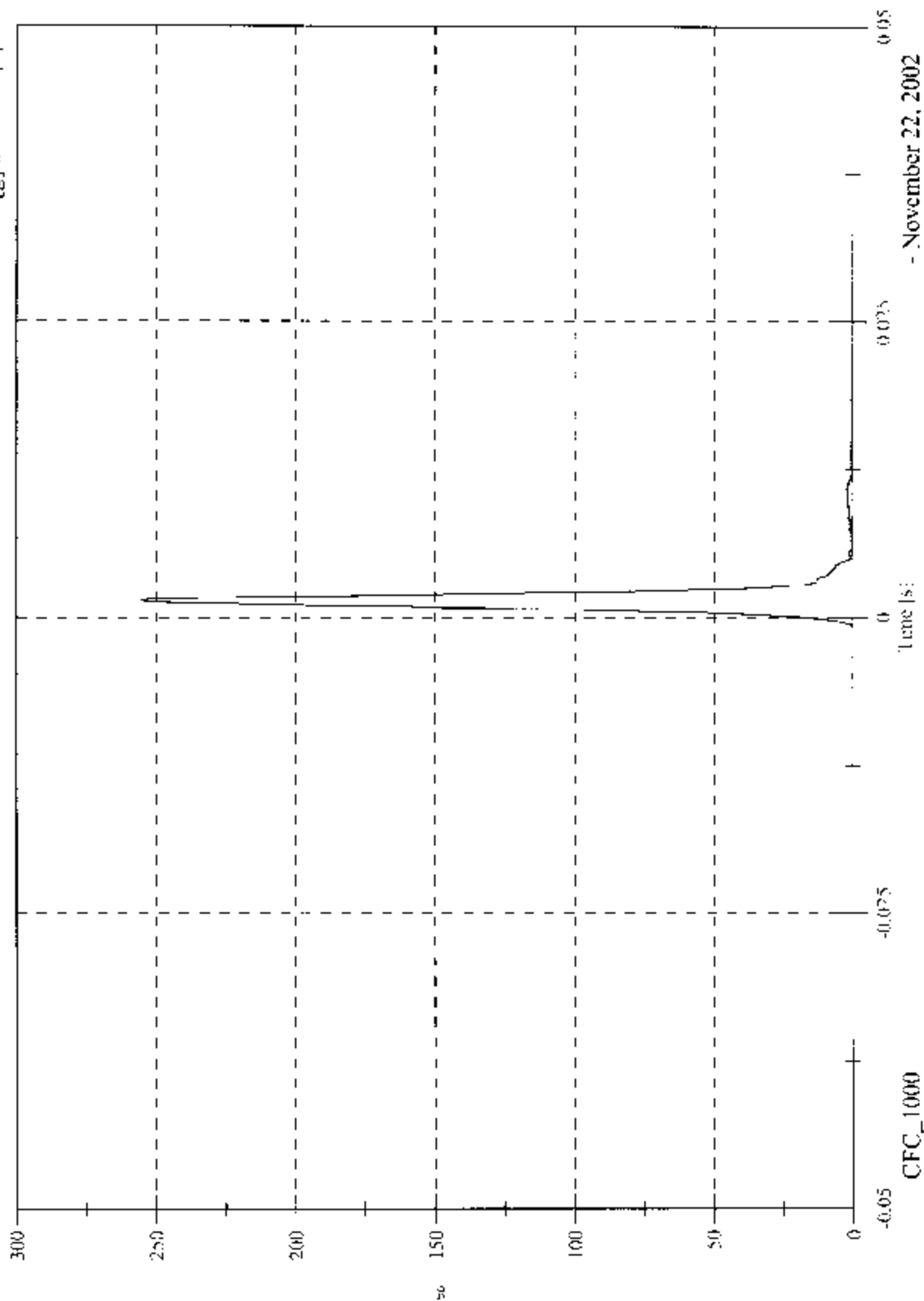


- November 22, 2002

FMVSS 201C - Head Form Calibration Drops

Max: 255.4 [g] at 0.001 [s]
Min: 0.0 [g] at -0.014 [s]

Headform Resultant



- November 22, 2002

PART 572L
HEAD DROP PRE-TEST

MANUFACTURER:	APPLIED SAFETY TECHNOLOGIES CORPORATION	
SERIAL NUMBER:	40062	
CALIBRATION DATE:	NOVEMBER 22, 2002	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	20
RELATIVE HUMIDITY	10% to 70%	32
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	244.4
PEAK LATERAL ACCELERATION	15 Gs Maximum	5.3
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

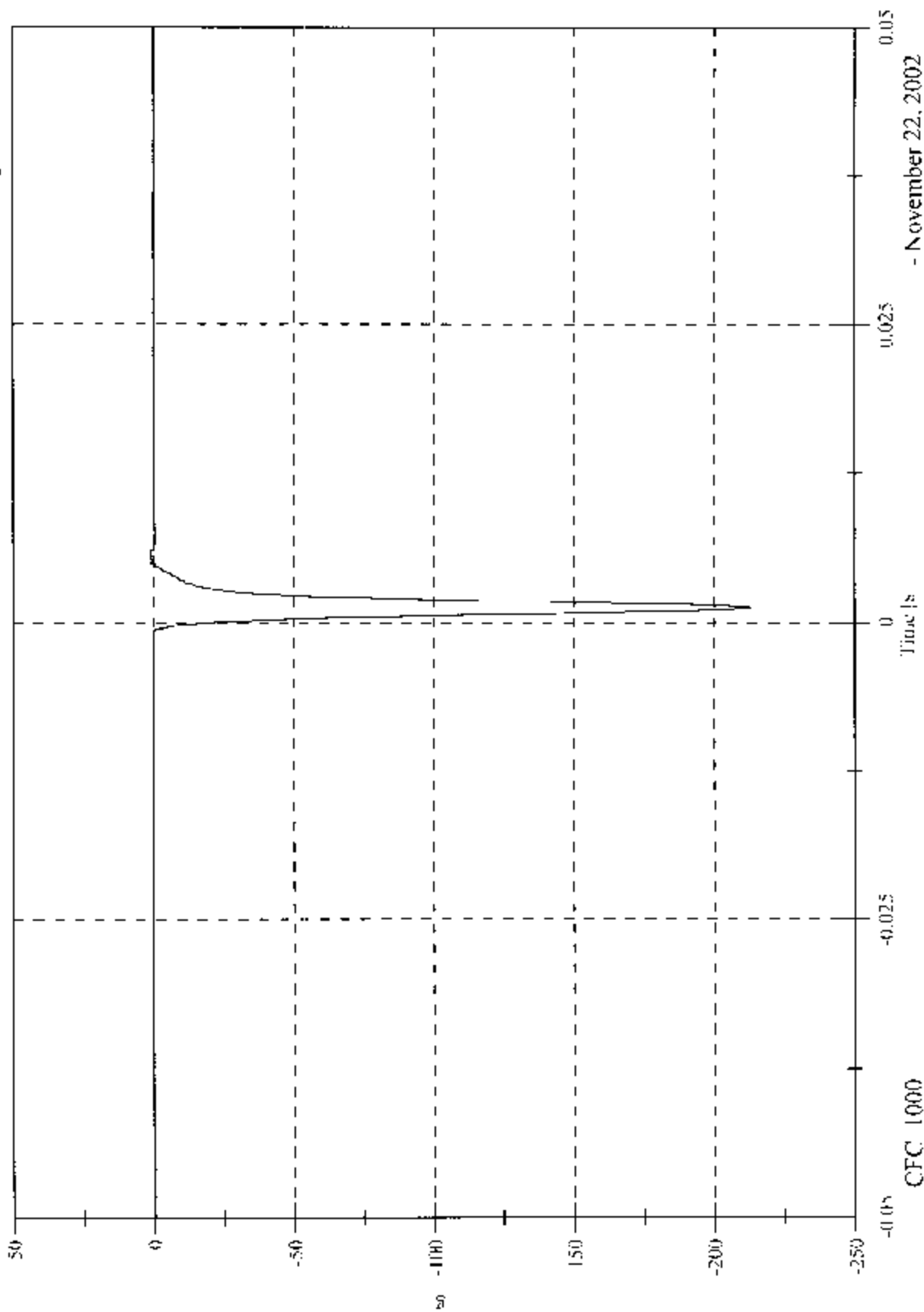
ID. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J33127	9/02	3/03
2 - LATERAL	ENDEVCO	7264-2000T	J33019	9/02	3/03
3 - VERTICAL	ENDEVCO	7264-2000T	J32782	9/02	3/03

REMARKS

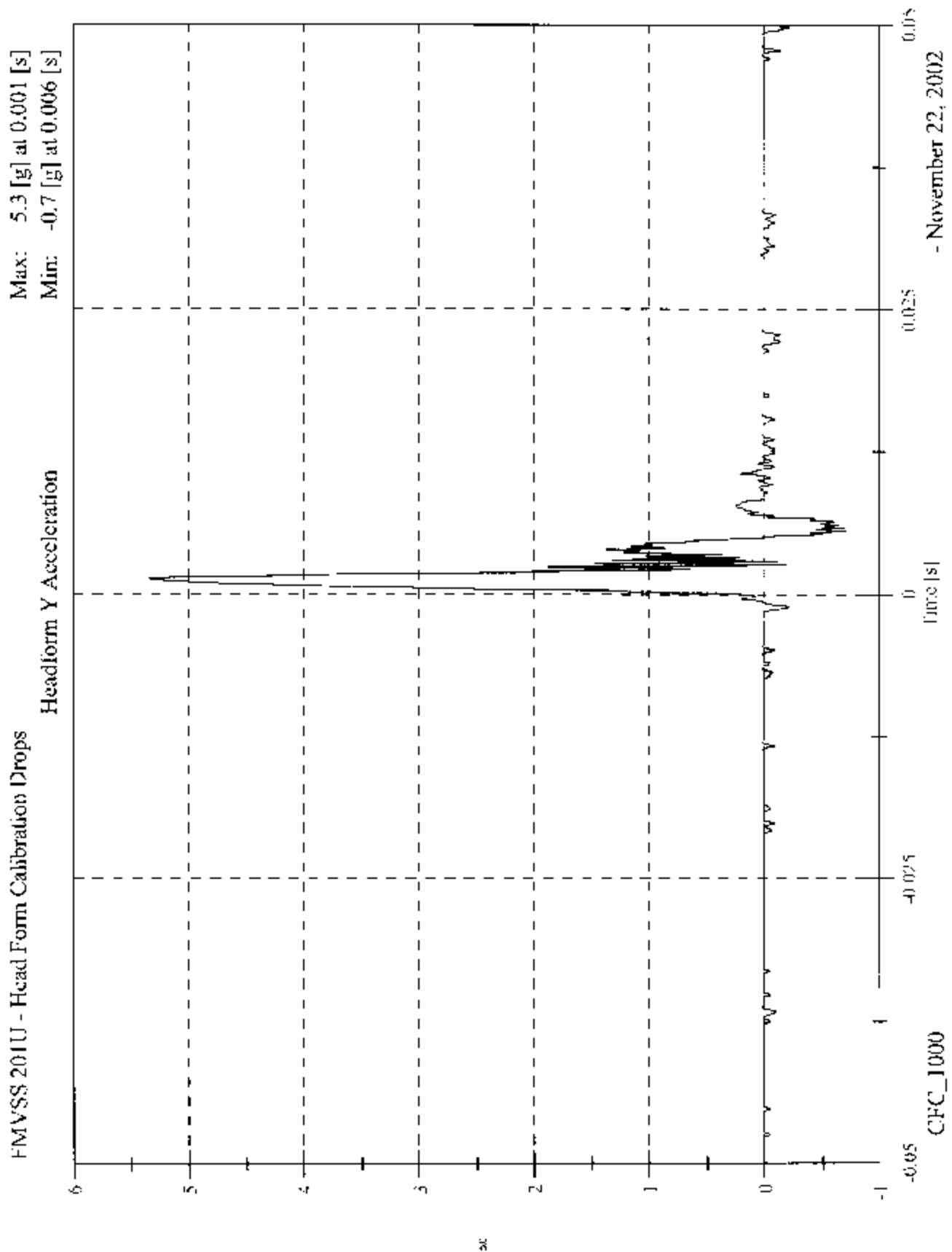
FMVSS 2010 - Head Form Calibration Drops

Headform X Acceleration

Max: 1.3 [g] at 0.006 [s]
Min: -213.2 [g] at 0.001 [s]



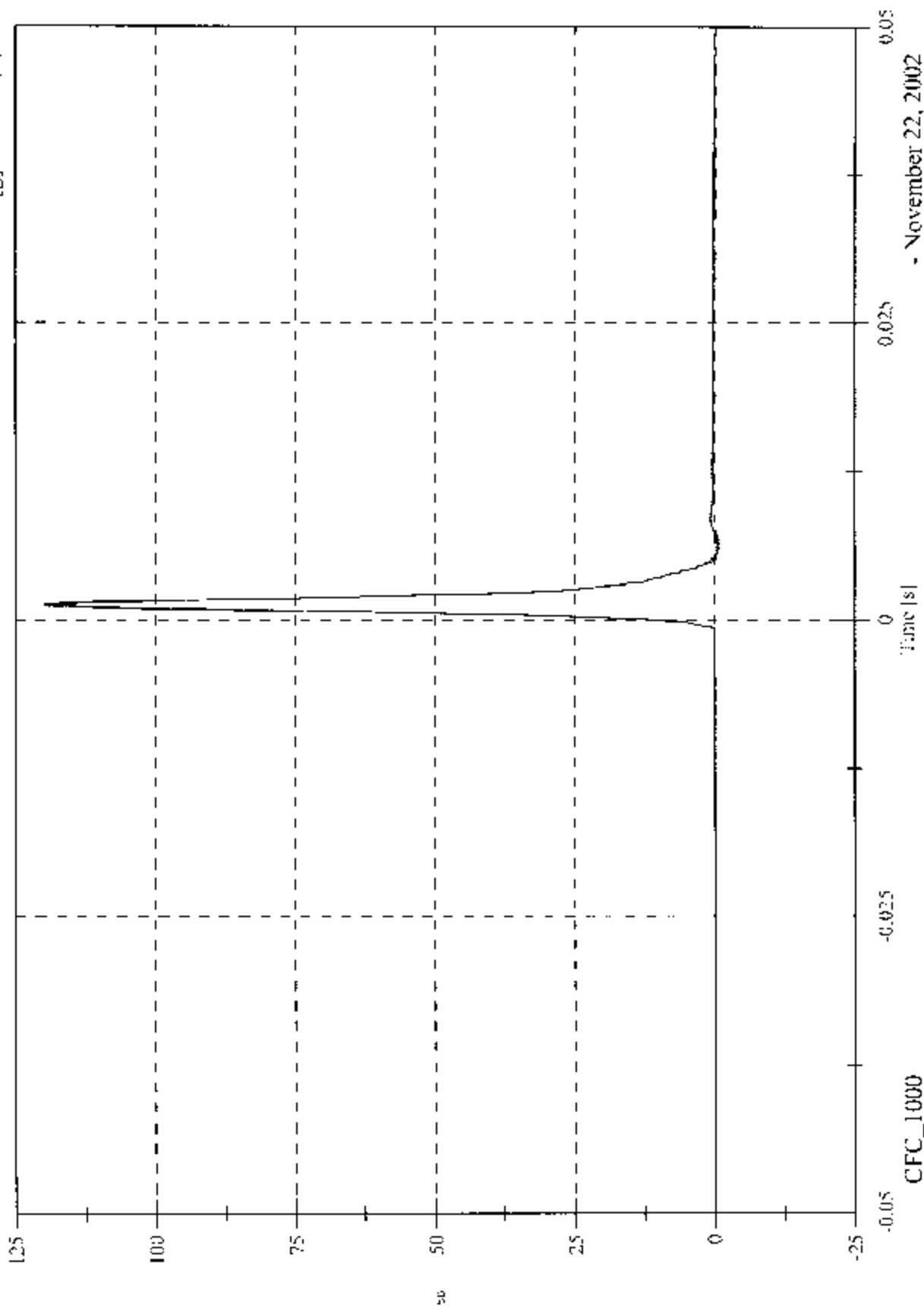
- November 22, 2002

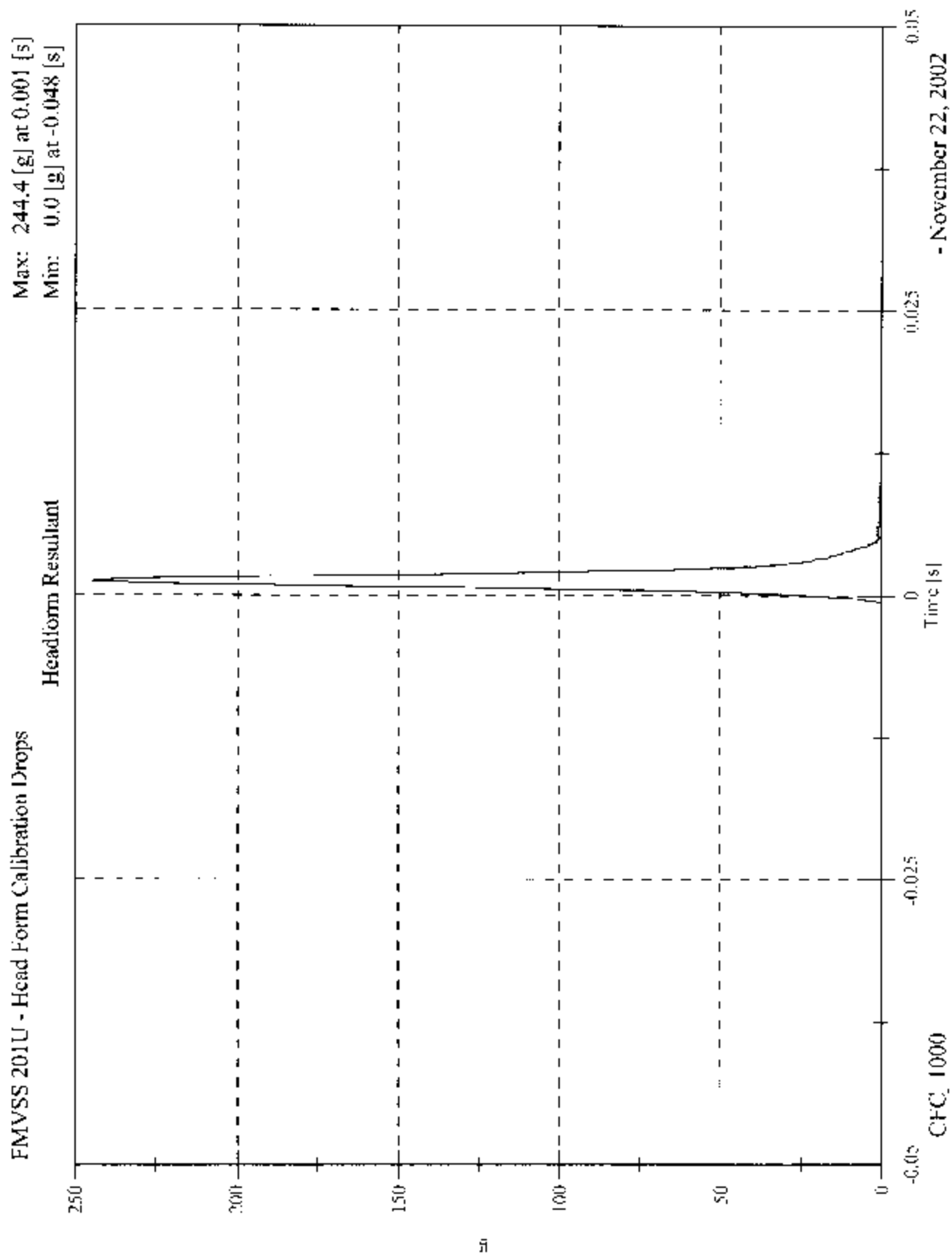


FMVSS 201C - Head Form Calibration Drops

Max: 119.9 [g] at 0.001 [s]
Min: -0.9 [g] at 0.006 [s]

Headform Z Acceleration





PART 5721.
HEAD DROP PRE-TEST

MANUFACTURER:	APPLIED SAFETY TECHNOLOGIES CORPORATION	
SERIAL NUMBER:	0355	
CALIBRATION DATE:	NOVEMBER 22, 2002	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	20
RELATIVE HUMIDITY	10% to 70%	32
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	238.0
PEAK LATERAL ACCELERATION	15 Gs Maximum	4.0
IS ACCELERATION CURVE UNIMODAL??	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

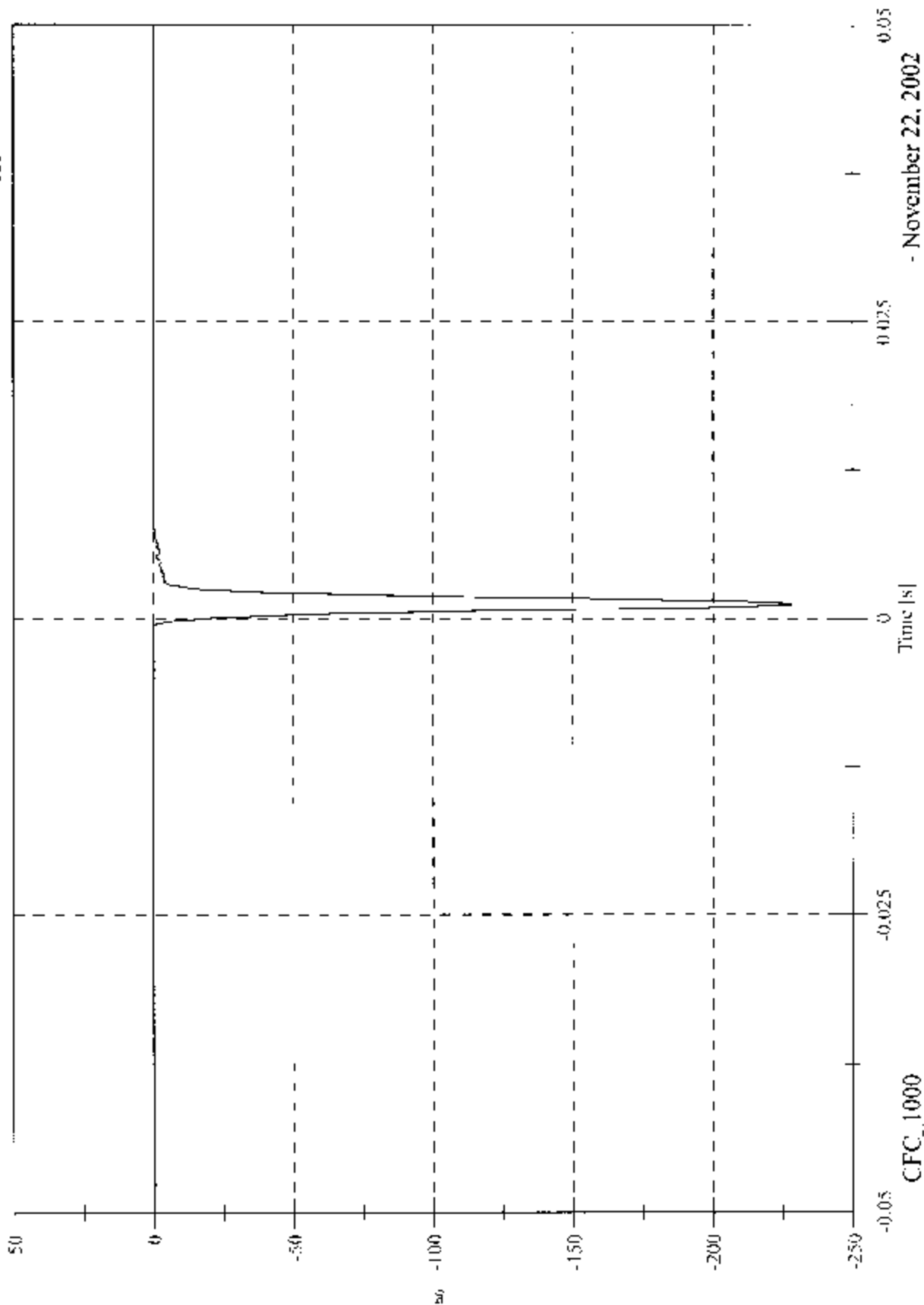
ID. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J28671	9/02	3/03
2 - LATERAL	ENDEVCO	7264-2000T	J32779	9/02	3/03
3 - VERTICAL	ENDEVCO	7264-2000T	J25834	9/02	3/03

REMARKS:

FMVSS 2010 - Head Form Calibration Drops

Headform X Acceleration

Max: 0.3 [g] at 0.009 [s]
Min: -228.0 [g] at 0.001 [s]



CFC_1000

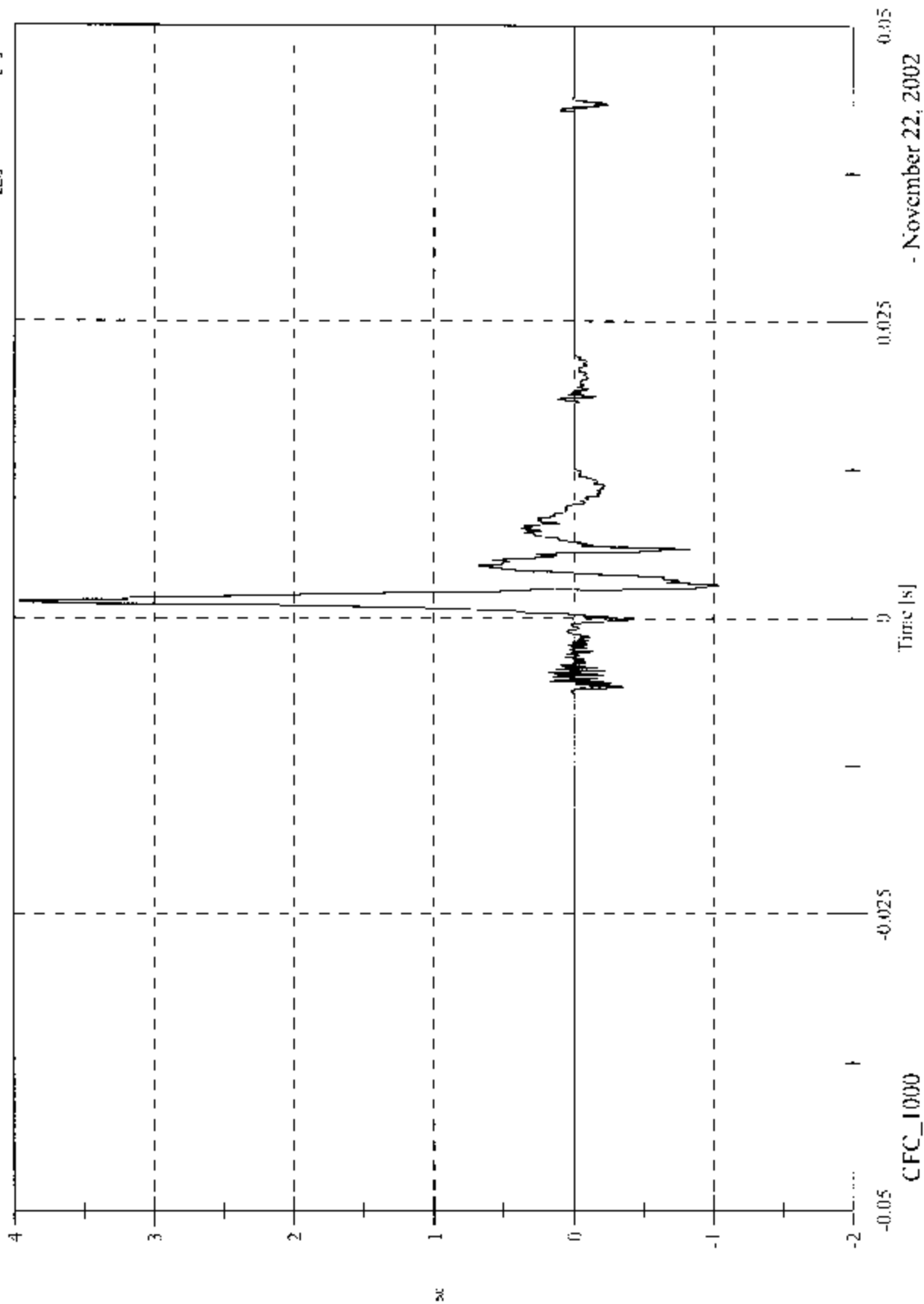
Time [s]

- November 22, 2002

FMVSS 201C - Head Form Calibration Drops

Max: 4.0 [g] at 0.001 [s]
Min: -1.0 [g] at 0.003 [s]

Headform Y Acceleration



CFC_1000

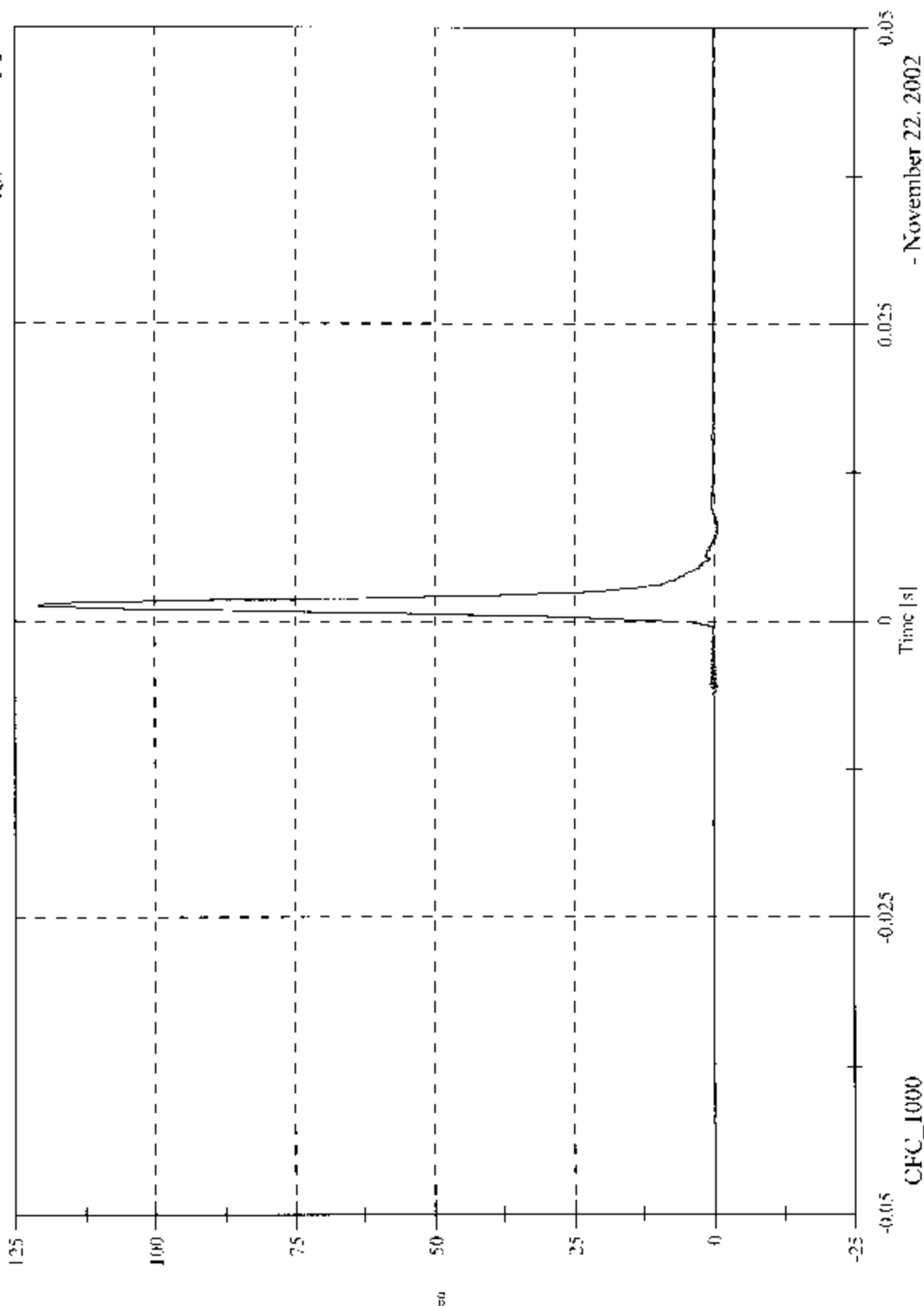
Time [s]

- November 22, 2002

FMVSS 201U - Head Form Calibration Drops

Headform Z Acceleration

Max: 120.9 [g] at 0.001 [s]
Min: -0.7 [g] at 0.008 [s]

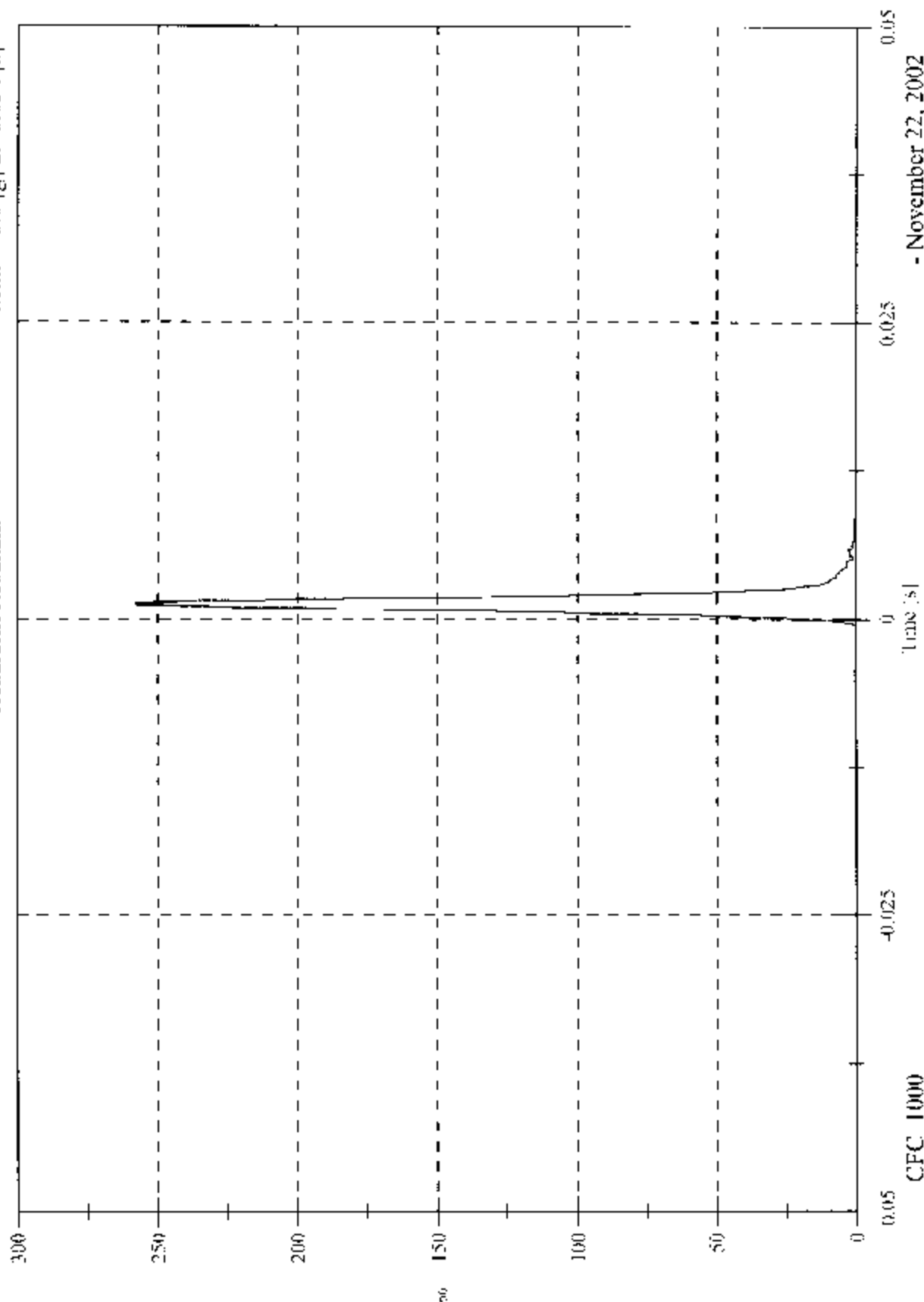


- November 22, 2002

FMVSS 2010 - Head Form Calibration Drops

Max: 258.0 [g] at 0.001 [s]
Min: 0.0 [g] at -0.034 [s]

Headform Resultant



- November 22, 2002

PART 572L
HEAD DROP PRE-TEST

MANUFACTURER:	APPLIED SAFETY TECHNOLOGIES CORPORATION	
SERIAL NUMBER:	1255	
CALIBRATION DATE:	NOVEMBER 22, 2002	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	20
RELATIVE HUMIDITY	10% to 70%	32
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	231.5
PEAK LATERAL ACCELERATION	15 Gs Maximum	3.7
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

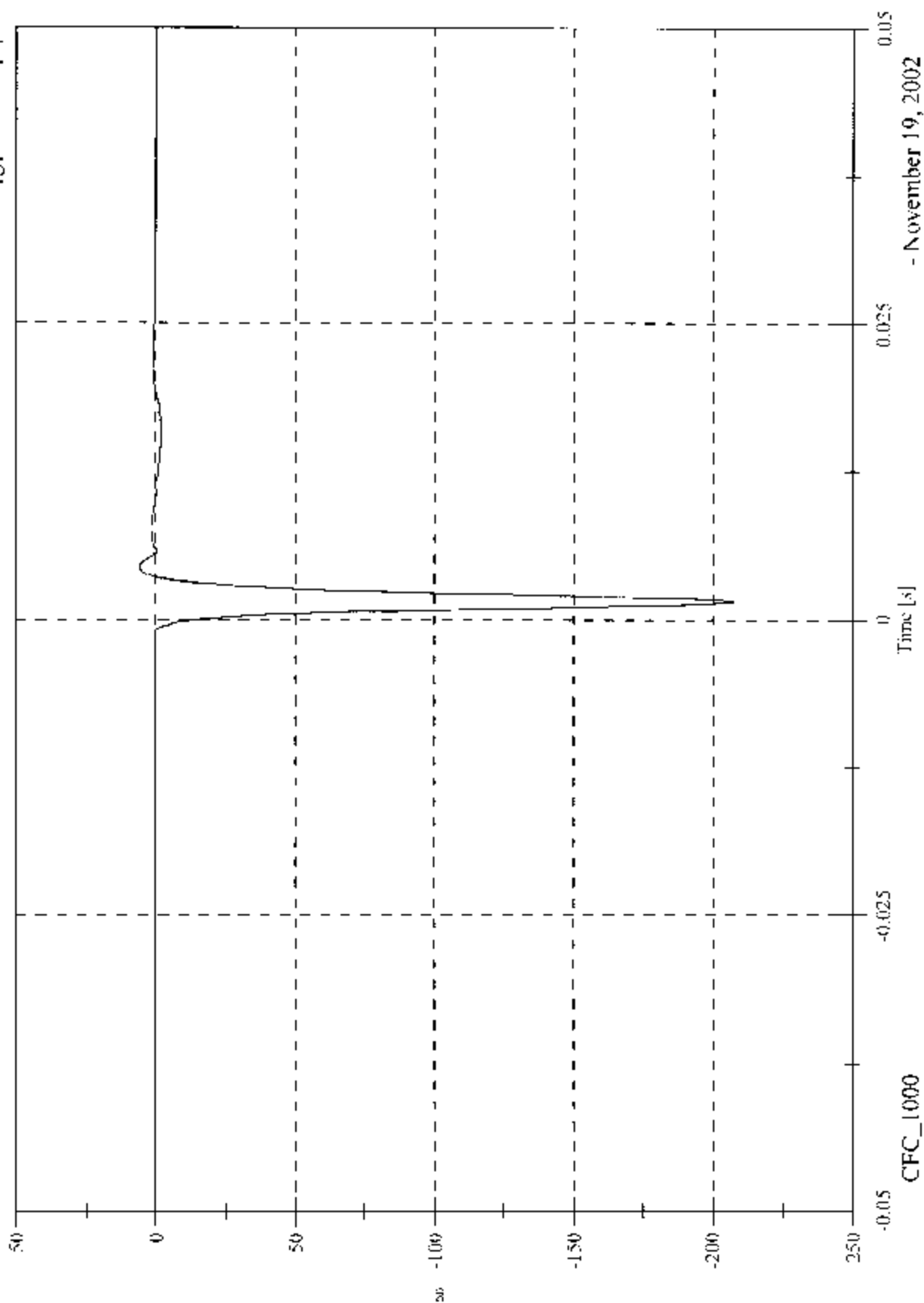
ID NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J41006	9/02	3/03
2 - LATERAL	ENDEVCO	7264-2000T	J40994	9/02	3/03
3 - VERTICAL	ENDEVCO	7264-2000T	J41007	9/02	3/03

REMARKS:

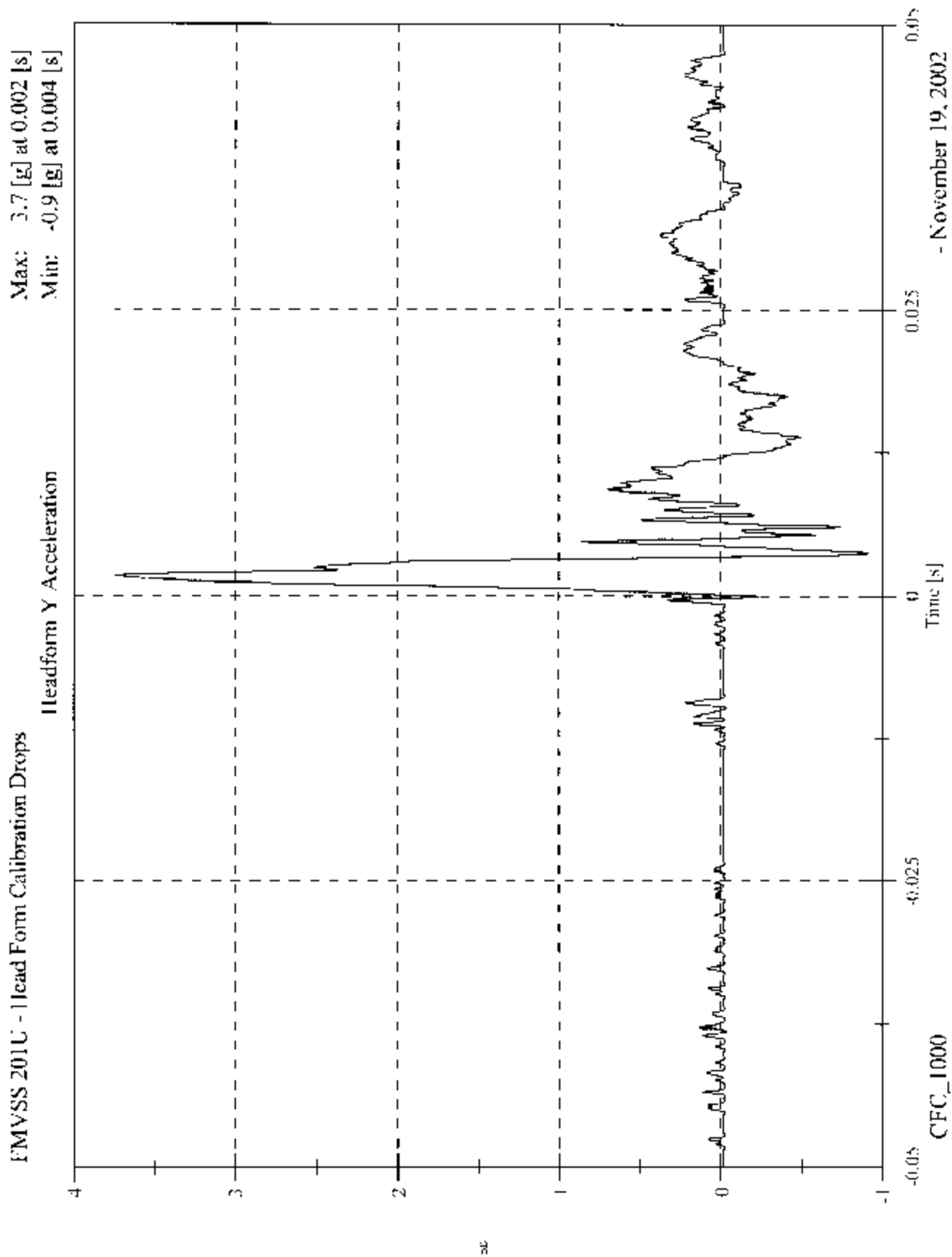
FMVSS 201U - Head Form Calibration Drops

Max: 5.9 [g] at 0.004 [s]
 Min: -207.6 [g] at 0.002 [s]

Headform X Acceleration



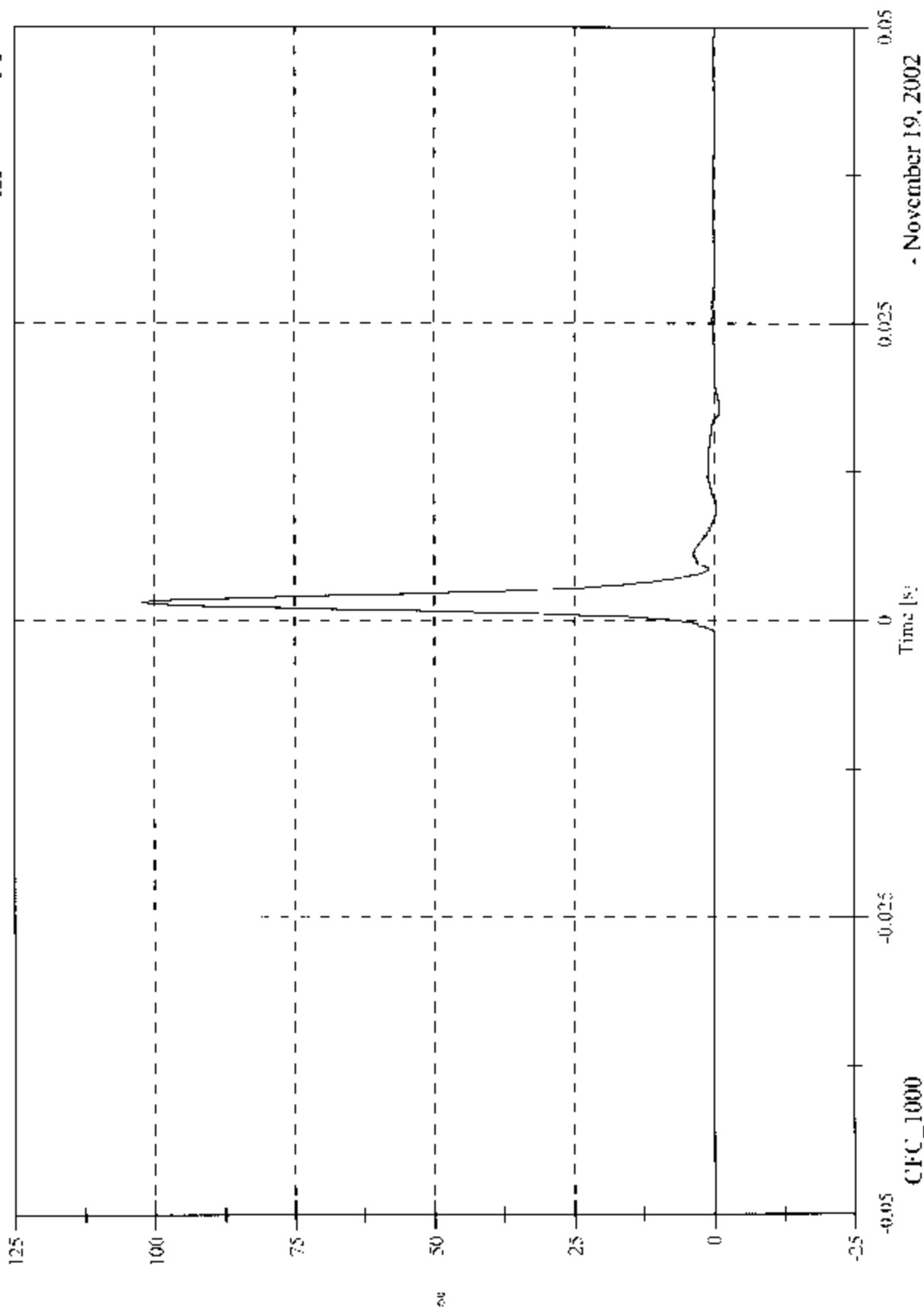
- November 19, 2002



FMVSS 201U - Head Form Calibration Drops

Max: 102.3 [g] at 0.002 [s]
Min: -1.0 [g] at 0.017 [s]

Headform Z Acceleration

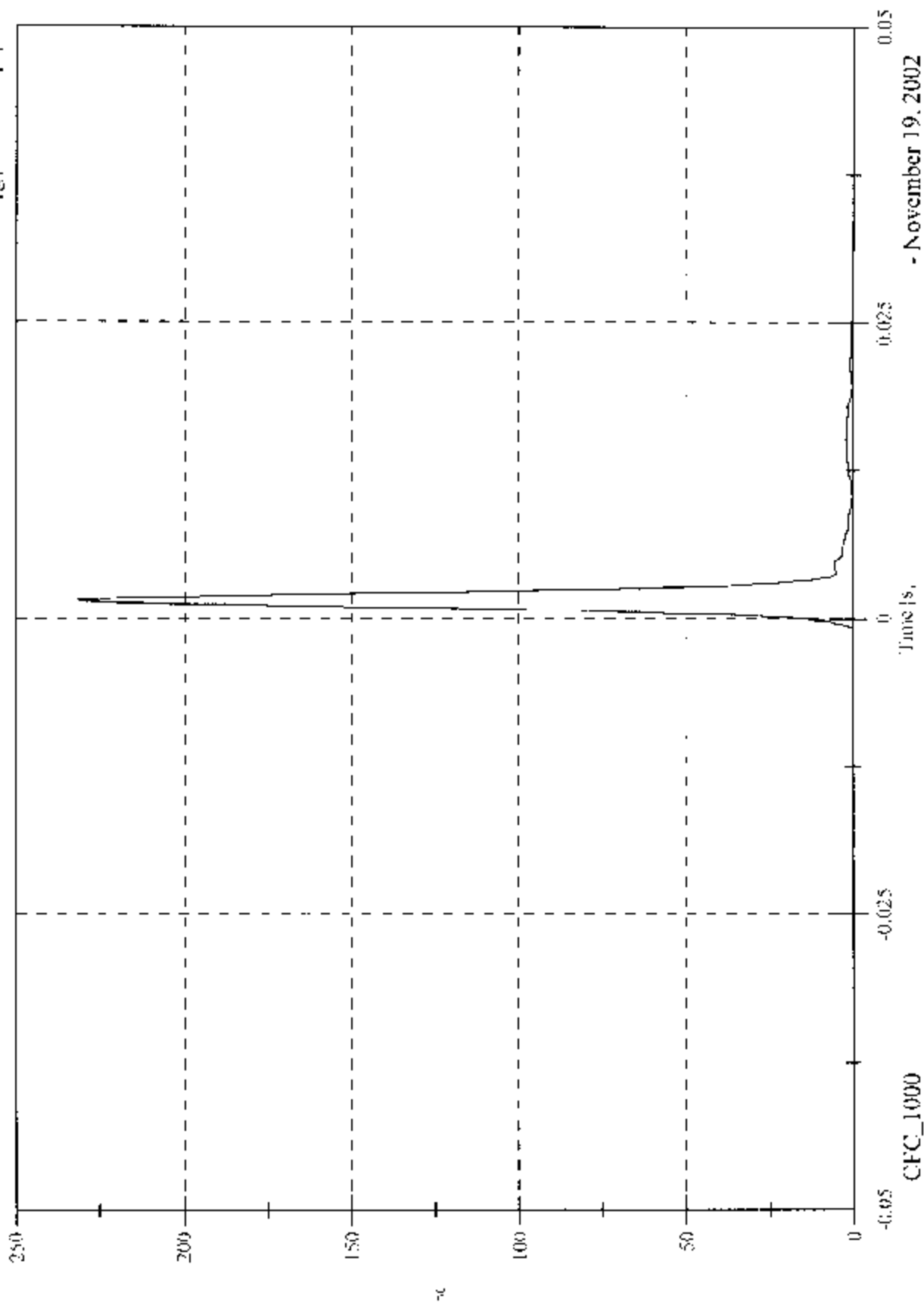


- November 19, 2002

FMVSS 201C - Head Form Calibration Drops

Max: 231.5 [g] at 0.002 [s]
 Min: 0.0 [g] at -0.011 [s]

Headform Resultant



CFC_1000

Time [s]

- November 19, 2002

PART 572L
HEAD DROP POSITION TEST

MANUFACTURER:	FIRST TECHNOLOGIES SAFETY SYSTEMS	
SERIAL NUMBER:	0642	
CALIBRATION DATE:	December 23, 2002	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	21
RELATIVE HUMIDITY	10% to 70%	23
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	273.5
PEAK LATERAL ACCELERATION	15 Gs Maximum	6.4
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

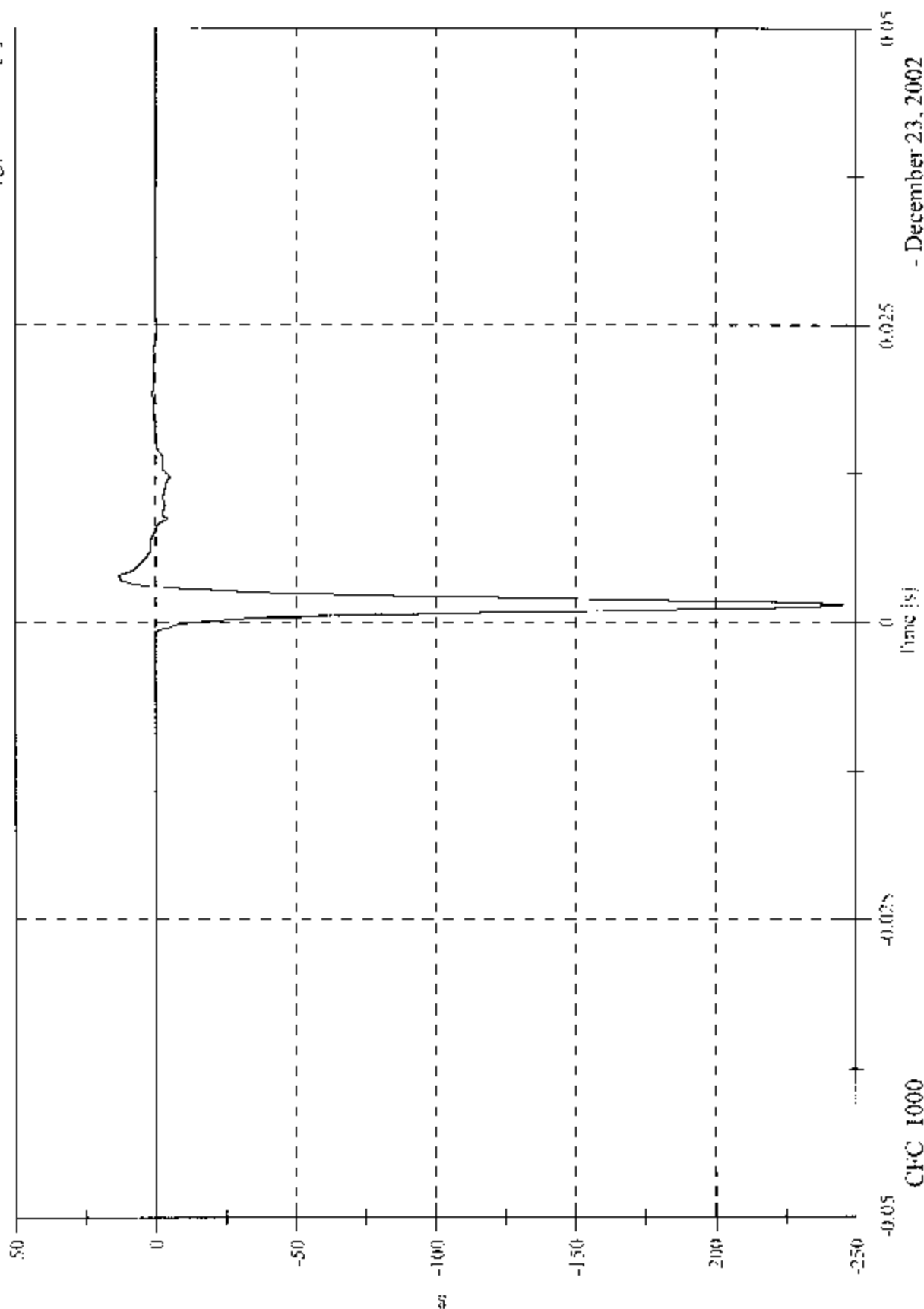
I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J24876	9/02	3/03
2 - LATERAL	ENDEVCO	7264-2000T	J13030	9/02	3/03
3 - VERTICAL	ENDEVCO	7264-2000T	J11009	9/02	3/03

REMARKS:

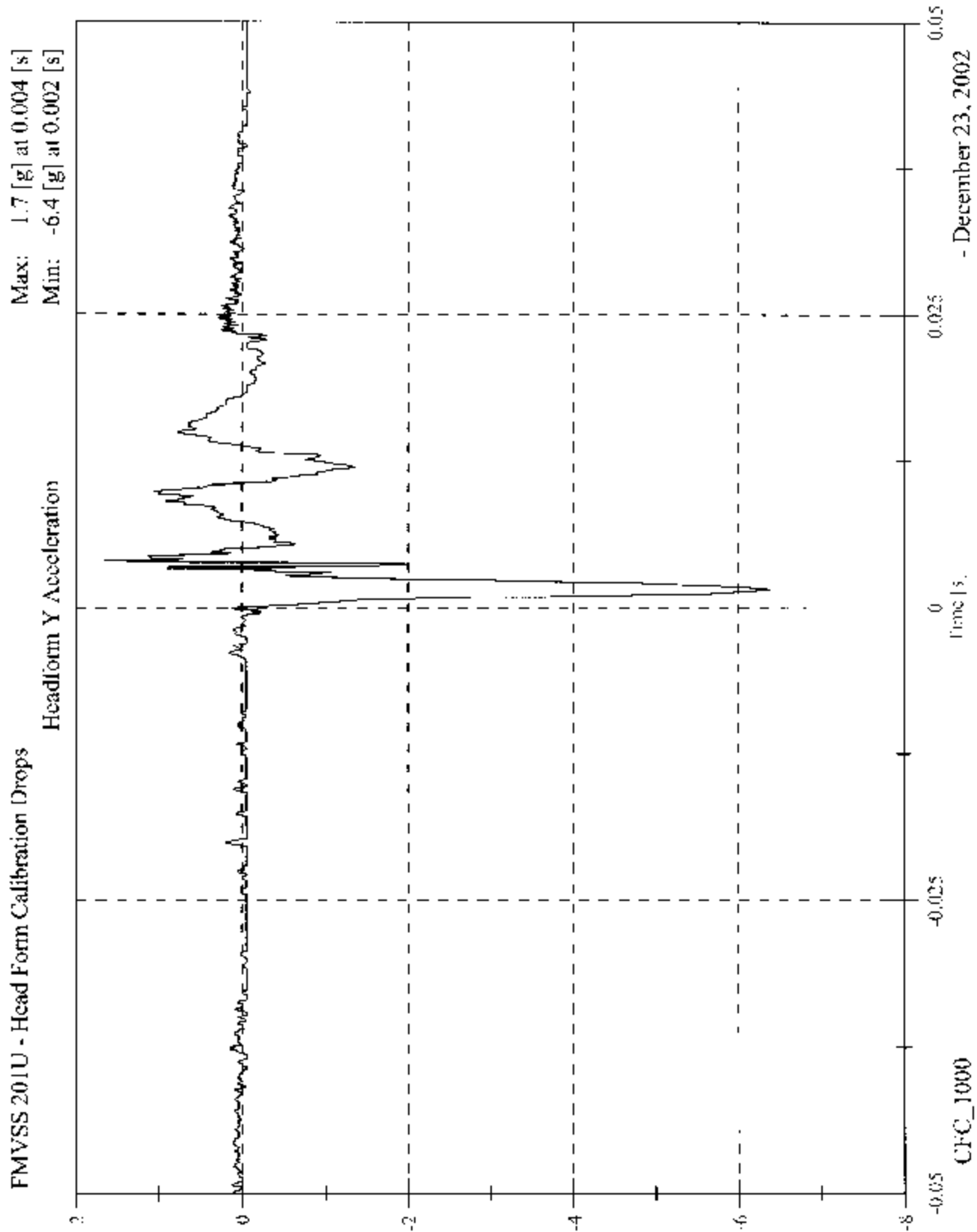
FMVSS 201U - Ilead Form Calibration Drops

Max: 13.1 [g] at 0.004 [s]
Min: -245.6 [g] at 0.001 [s]

Ileadform X Acceleration



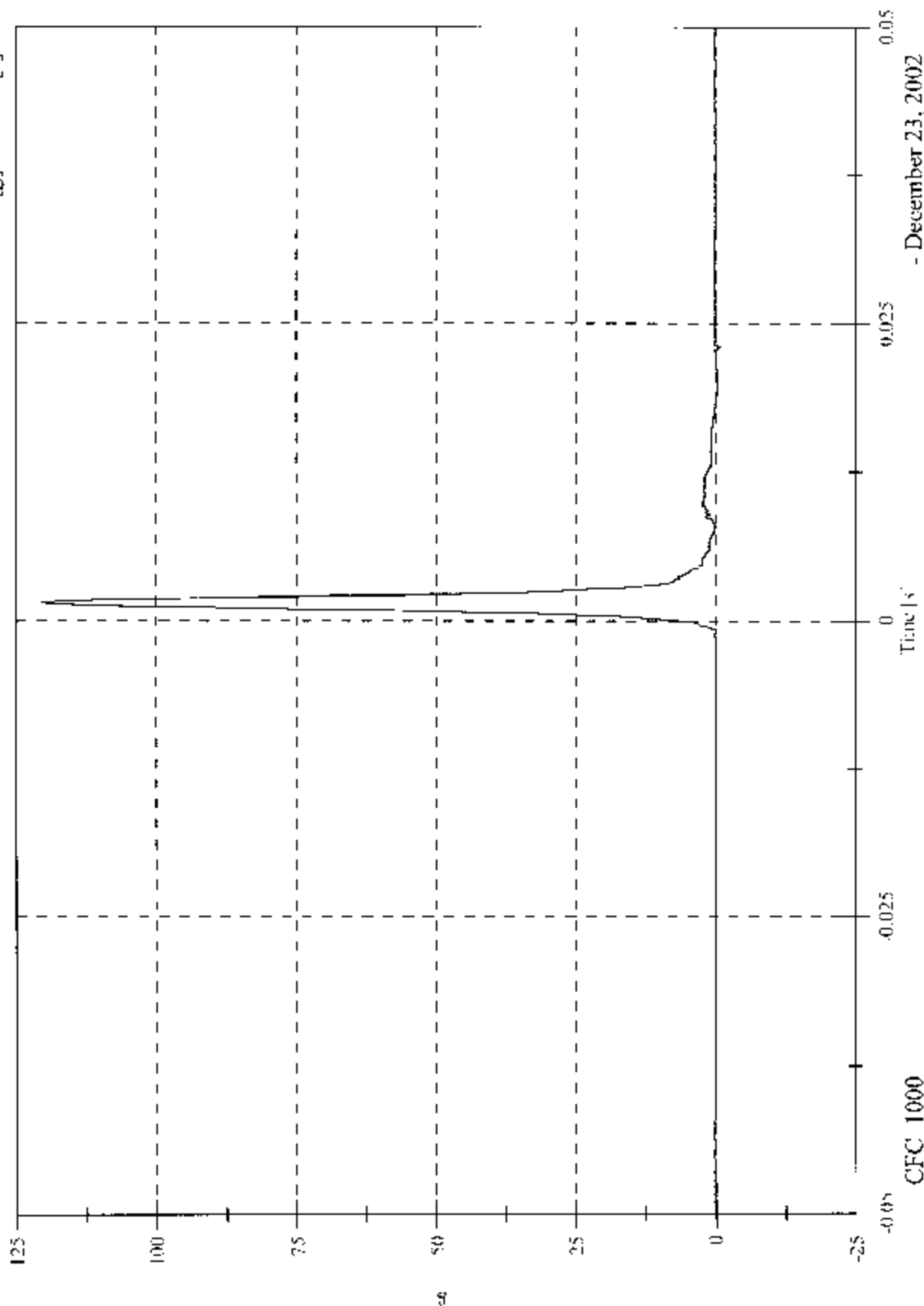
- December 23, 2002



FMVSS 201U - Head Form Calibration Drops

Headform Z Acceleration

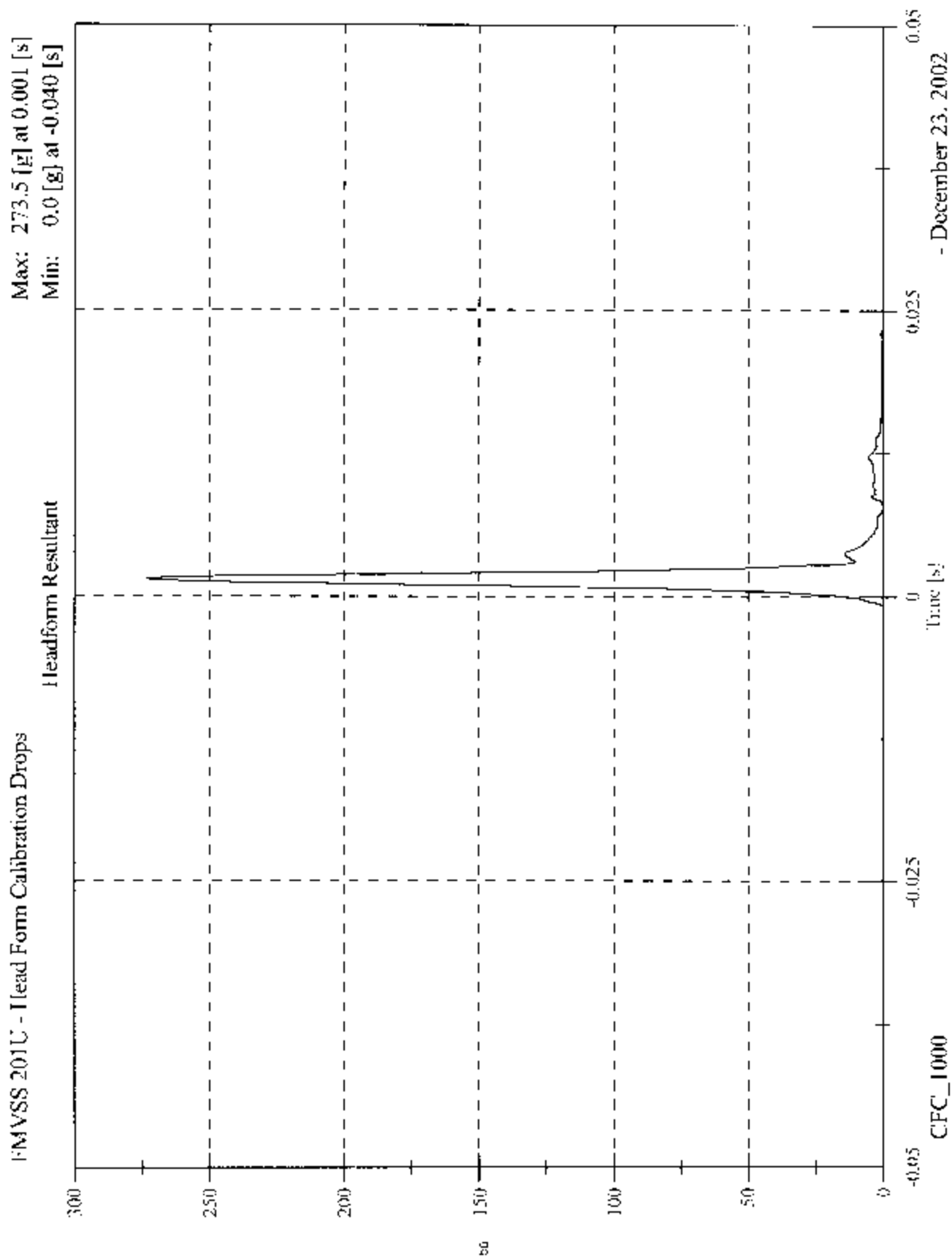
Max: 120.3 [g] at 0.002 [s]
Min: -0.8 [g] at 0.023 [s]



CFC_1000

Time [s]

- December 23, 2002



PART 5721
HEAD DROP POST-TEST

MANUFACTURER:	FIRST TECHNOLOGIES SAFETY SYSTEMS	
SERIAL NUMBER:	805	
CALIBRATION DATE:	December 23, 2002	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	21
RELATIVE HUMIDITY	10% to 70%	23
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	260.0
PEAK LATERAL ACCELERATION	15 Gs Maximum	8.5
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

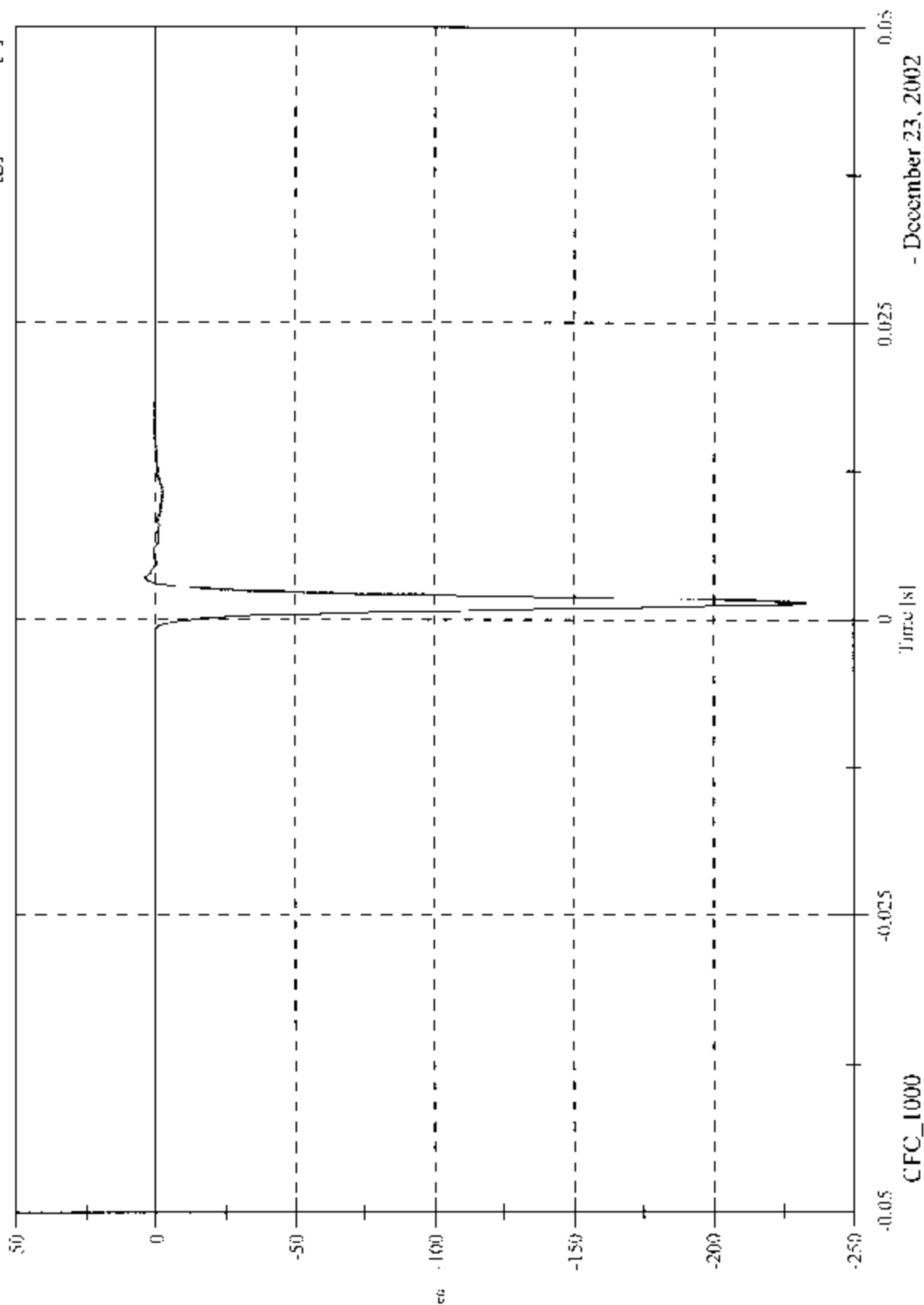
I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J38127	9/02	3/03
2 - LATERAL	ENDEVCO	7264-2000T	J37980	9/02	3/03
3 - VERTICAL	ENDEVCO	7264-2000T	J37854	9/02	3/03

REMARKS:

FMVSS 201U - Head Form Calibration Drops

Max: 3.8 [g] at 0.004 [s]
Min: -232.7 [g] at 0.001 [s]

Headform X Acceleration



CFC_1000

Time [s]

0.025

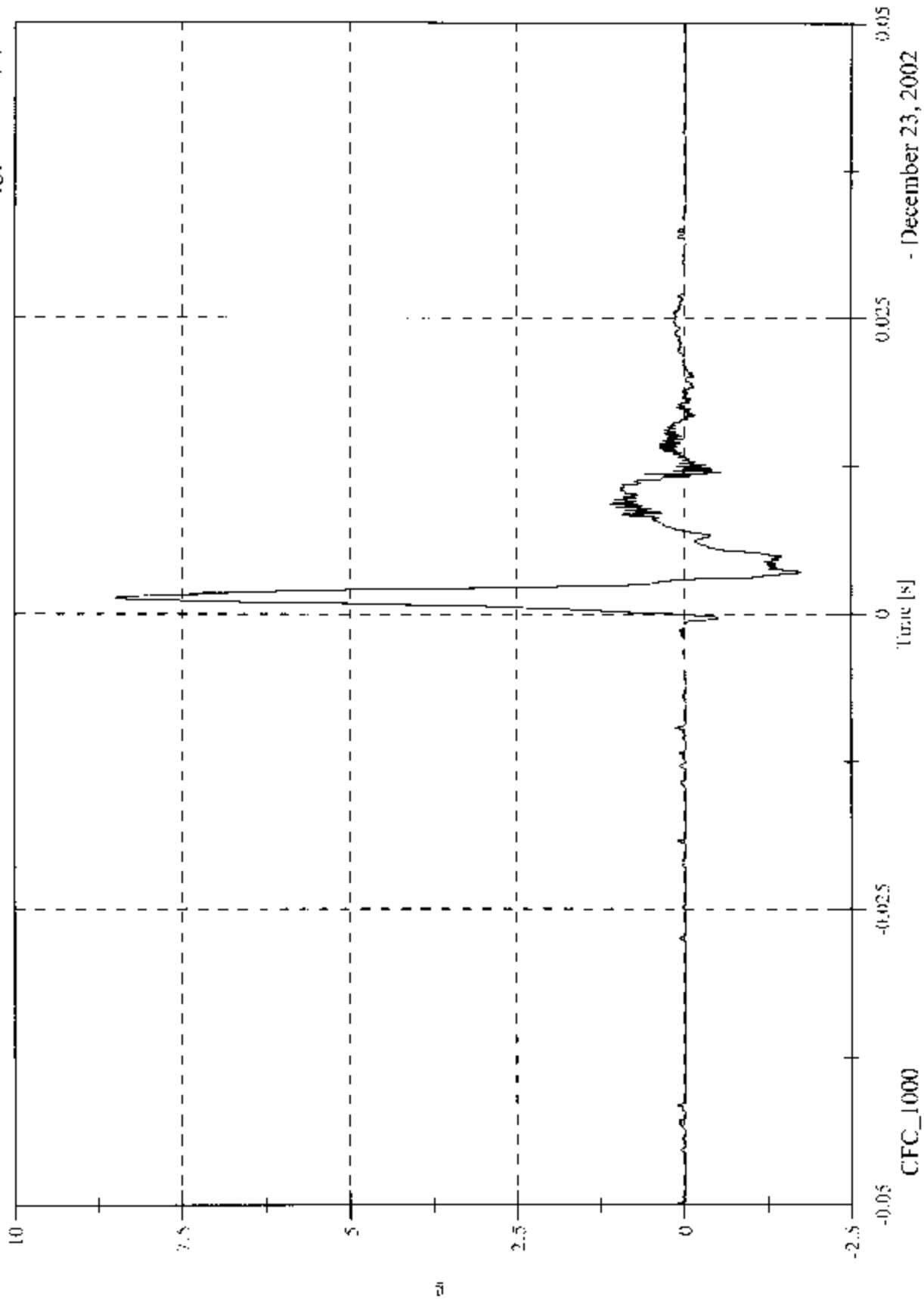
0.05

- December 23, 2002

FMVSS 201U - Head Form Calibration Drops

Max: 8.5 [g] at 0.001 [s]
Min: -1.7 [g] at 0.004 [s]

Headform Y Acceleration

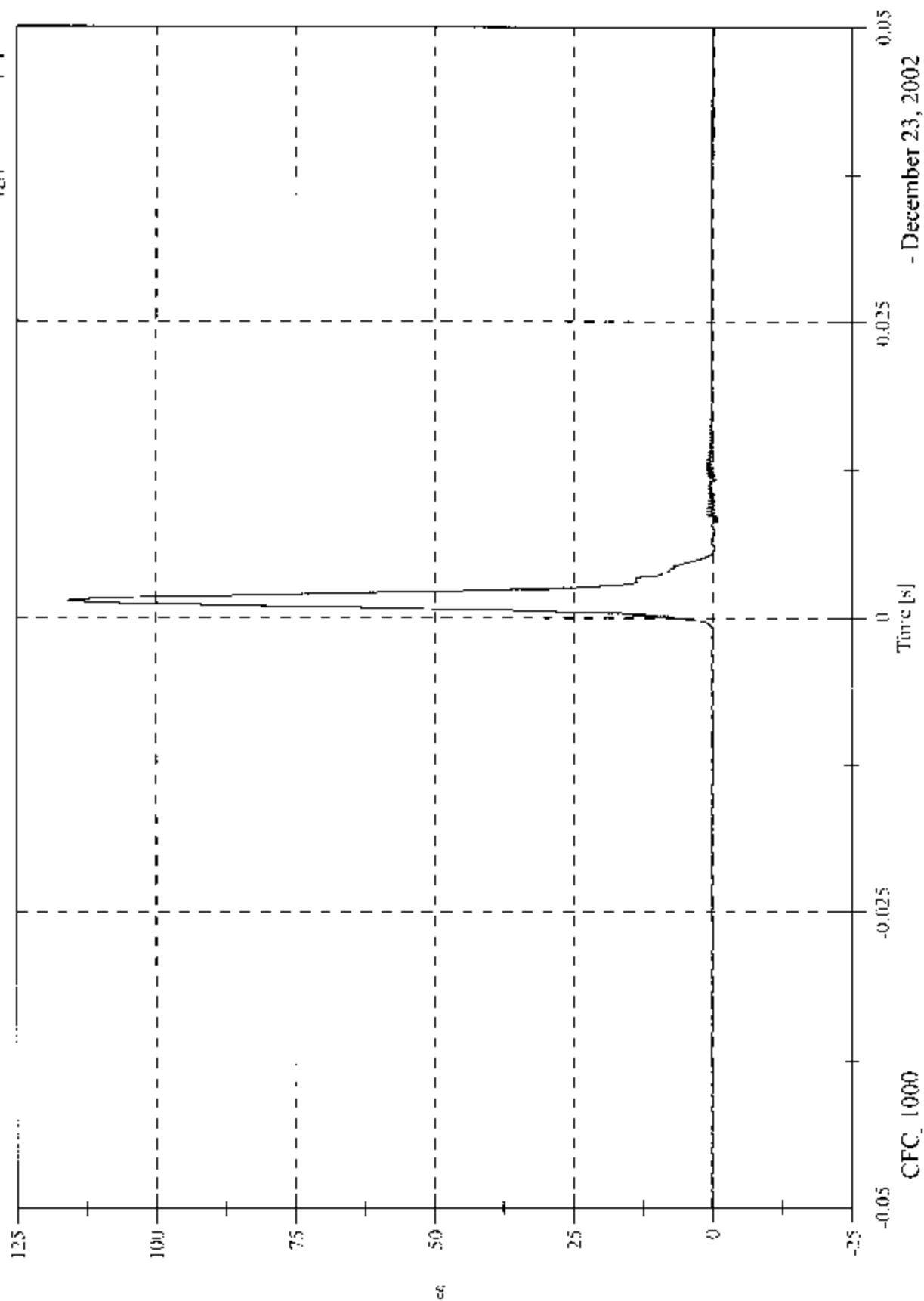


- December 23, 2002

FMVSS 201U - Head Form Calibration Drops

Max: 115.7 [g] at 0.001 [s]
 Min: -0.9 [g] at 0.008 [s]

Headform Z Acceleration

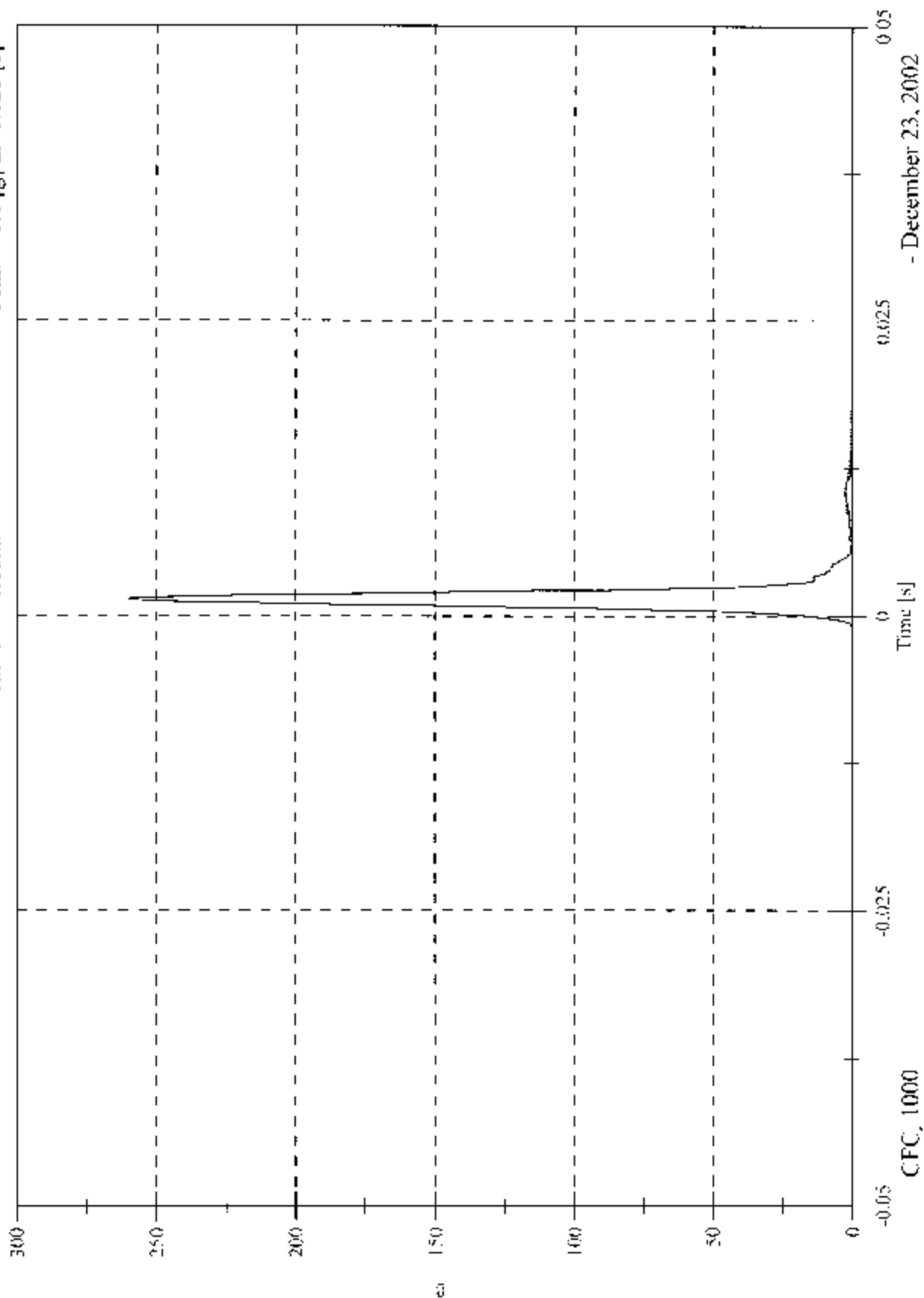


- December 23, 2002

FMVSS 201U - Head Form Calibration Drops

Headform Resultant

Max: 260.0 [g] at 0.001 [s]
Min: 0.0 [g] at -0.025 [s]



- December 23, 2002

PART 572L
HEAD DROP POST-TEST

MANUFACTURER:	APPLIED SAFETY TECHNOLOGIES CORPORATION	
SERIAL NUMBER:	0062	
CALIBRATION DATE:	December 23, 2002	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	21
RELATIVE HUMIDITY	10% to 70%	23
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	240.3
PEAK LATERAL ACCELERATION	15 Gs Maximum	6.3
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

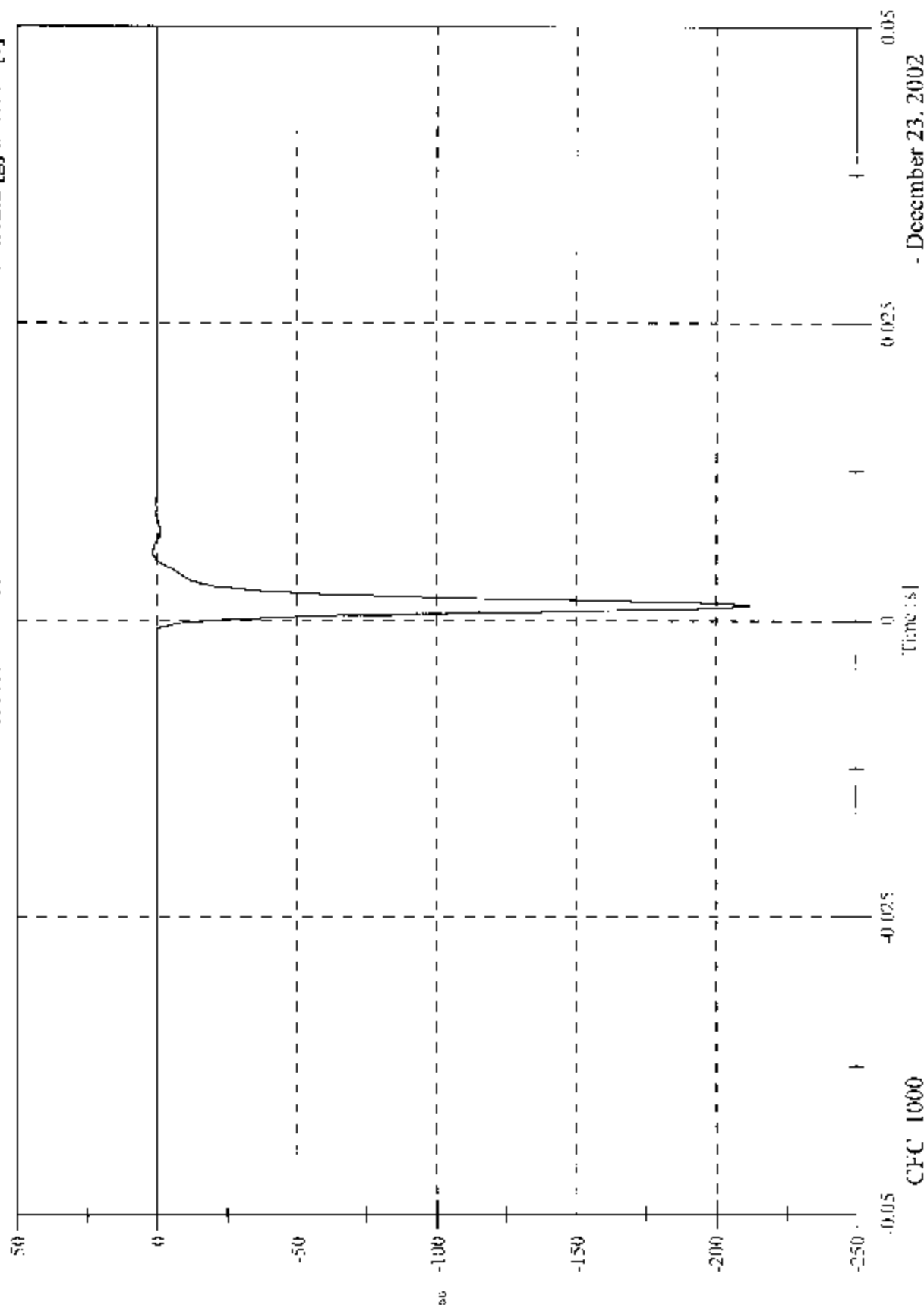
ID NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J33127	9/02	3/03
2 - LATERAL	ENDEVCO	7264-2000T	J33019	9/02	3/03
3 - VERTICAL	ENDEVCO	7264-2000T	J32782	9/02	3/03

REMARKS:

FMVSS 201C - Head Form Calibration Drops

Max: 1.6 [g] at 0.006 [s]
Min: -212.2 [g] at 0.001 [s]

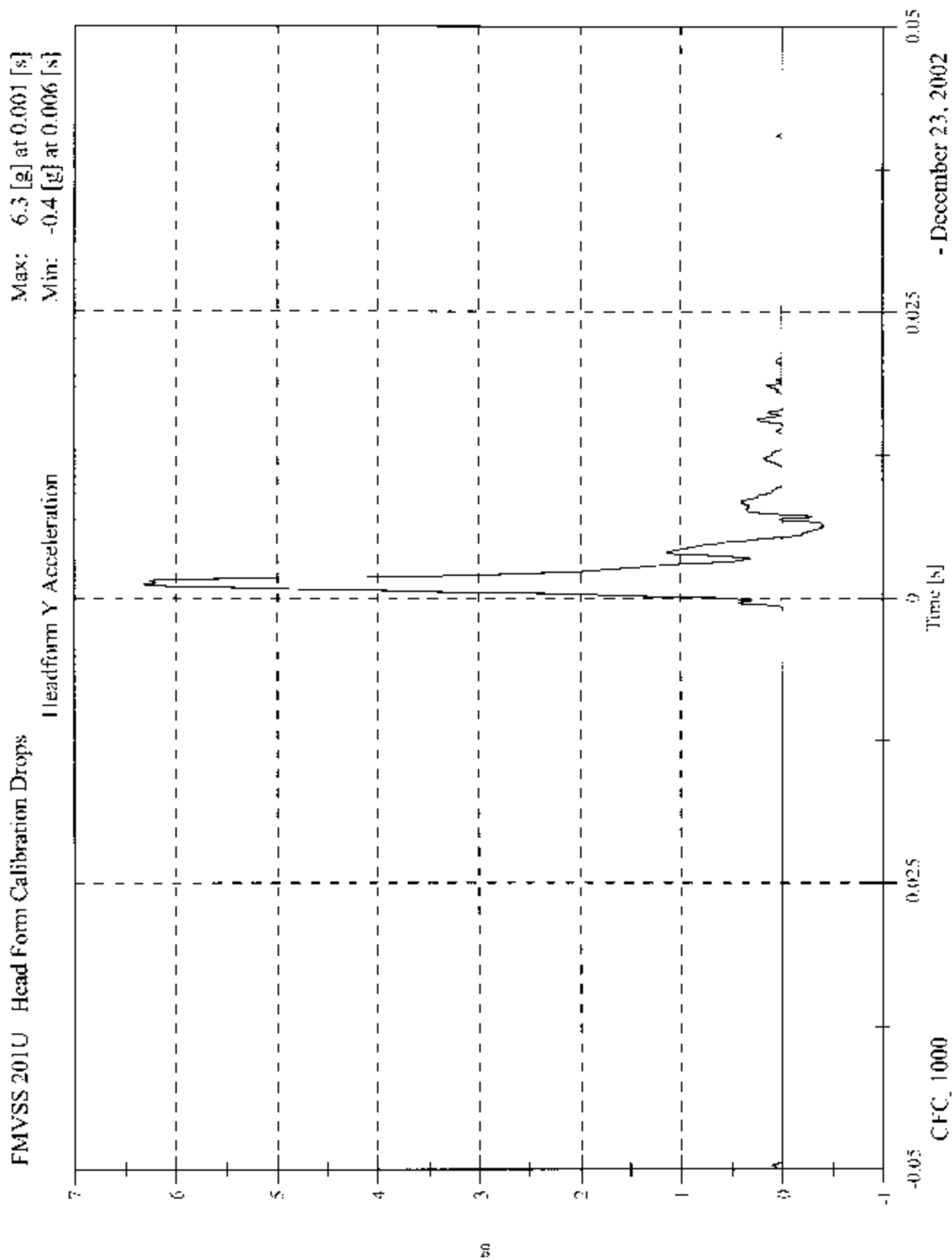
Headform X Acceleration



CPC_1000

Time (s)

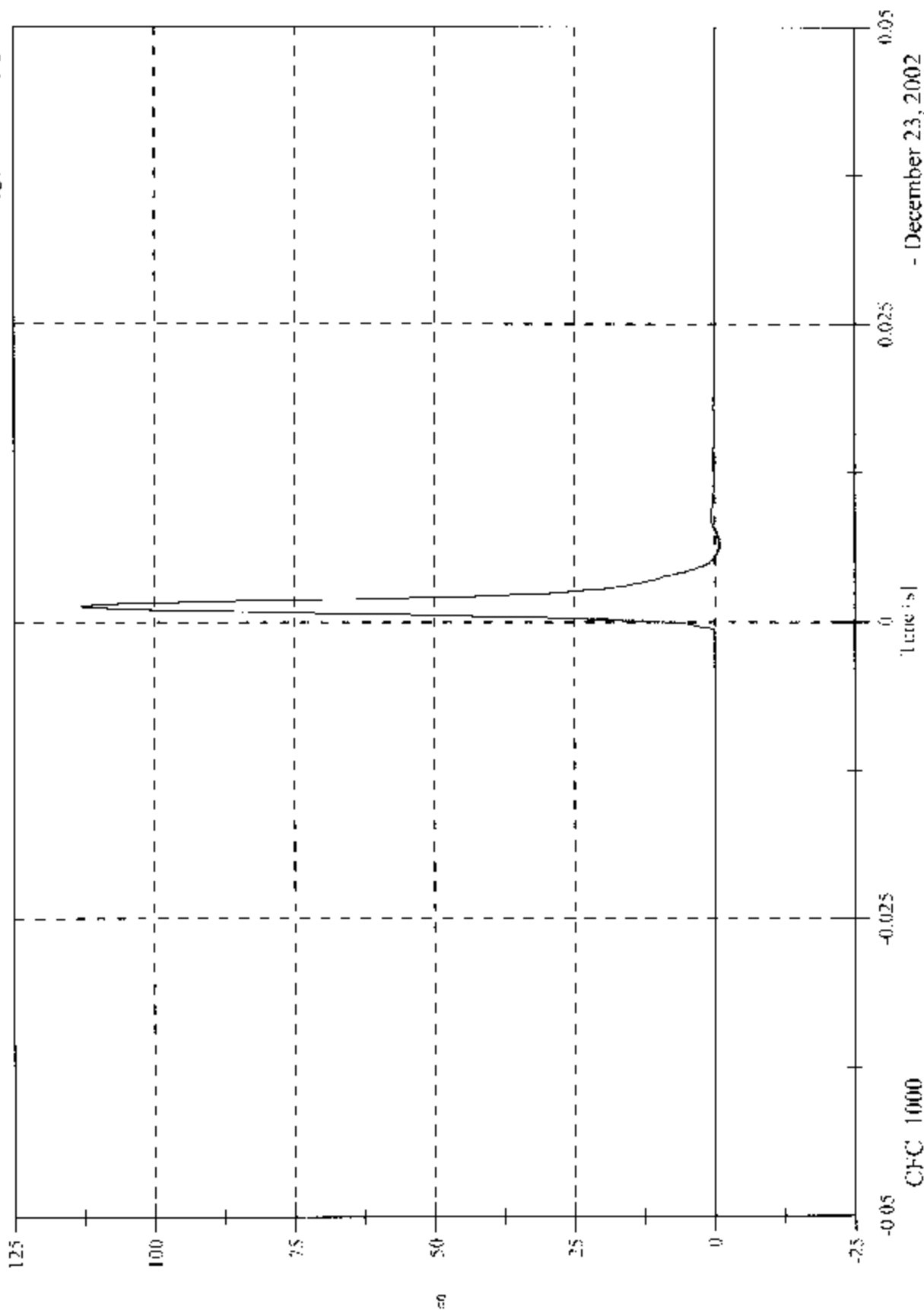
- December 23, 2002



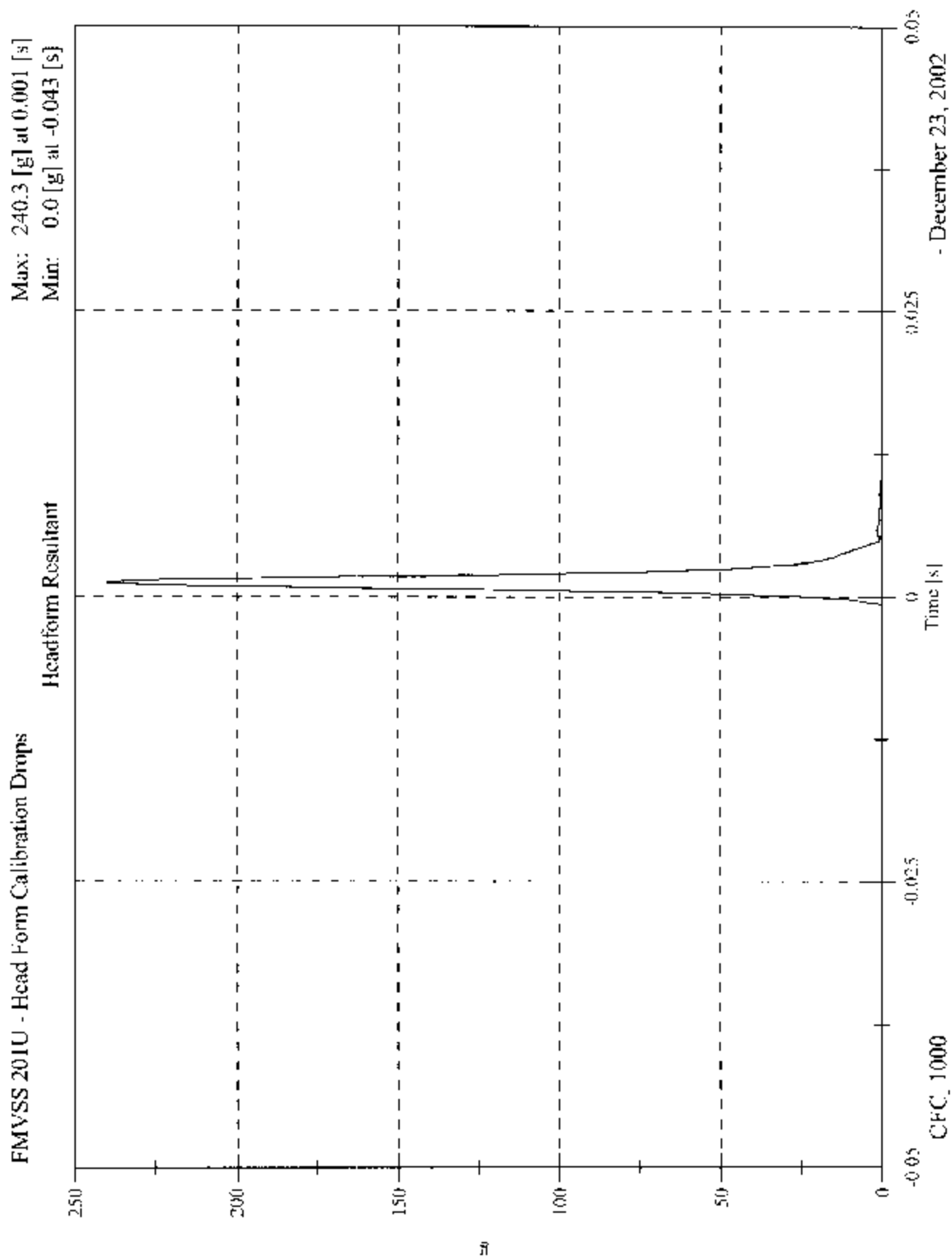
FMVSS 2010 - Head Form Calibration Drops

Max: 112.9 [g] at 0.001 [s]
Min: -1.0 [g] at 0.006 [s]

Headform Z Acceleration



- December 23, 2002



PART 5721
HEAD DROP POST-TEST

MANUFACTURER:	APPLIED SAFETY TECHNOLOGIES CORPORATION	
SERIAL NUMBER:	0355	
CALIBRATION DATE:	December 23, 2002	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	21
RELATIVE HUMIDITY	10% to 70%	23
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	225.6
PEAK LATERAL ACCELERATION	15 Gs Maximum	8.3
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

ID. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J28671	9/02	3/03
2 - LATERAL	ENDEVCO	7264-2000T	J32779	9/02	3/03
3 - VERTICAL	ENDEVCO	7264-2000T	J25854	9/02	3/03

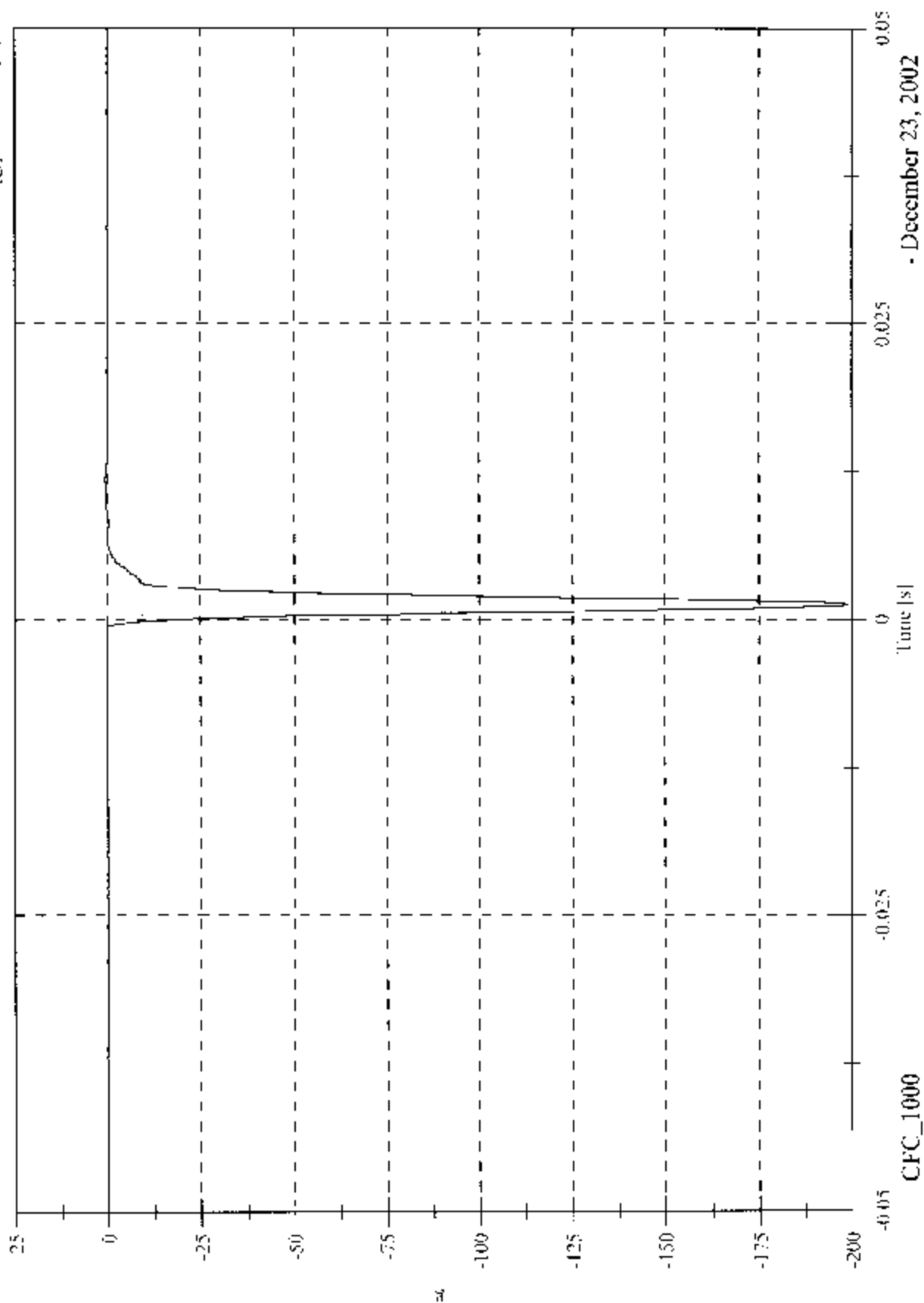
REMARKS:

FMVSS 2010 - Head Form Calibration Drops

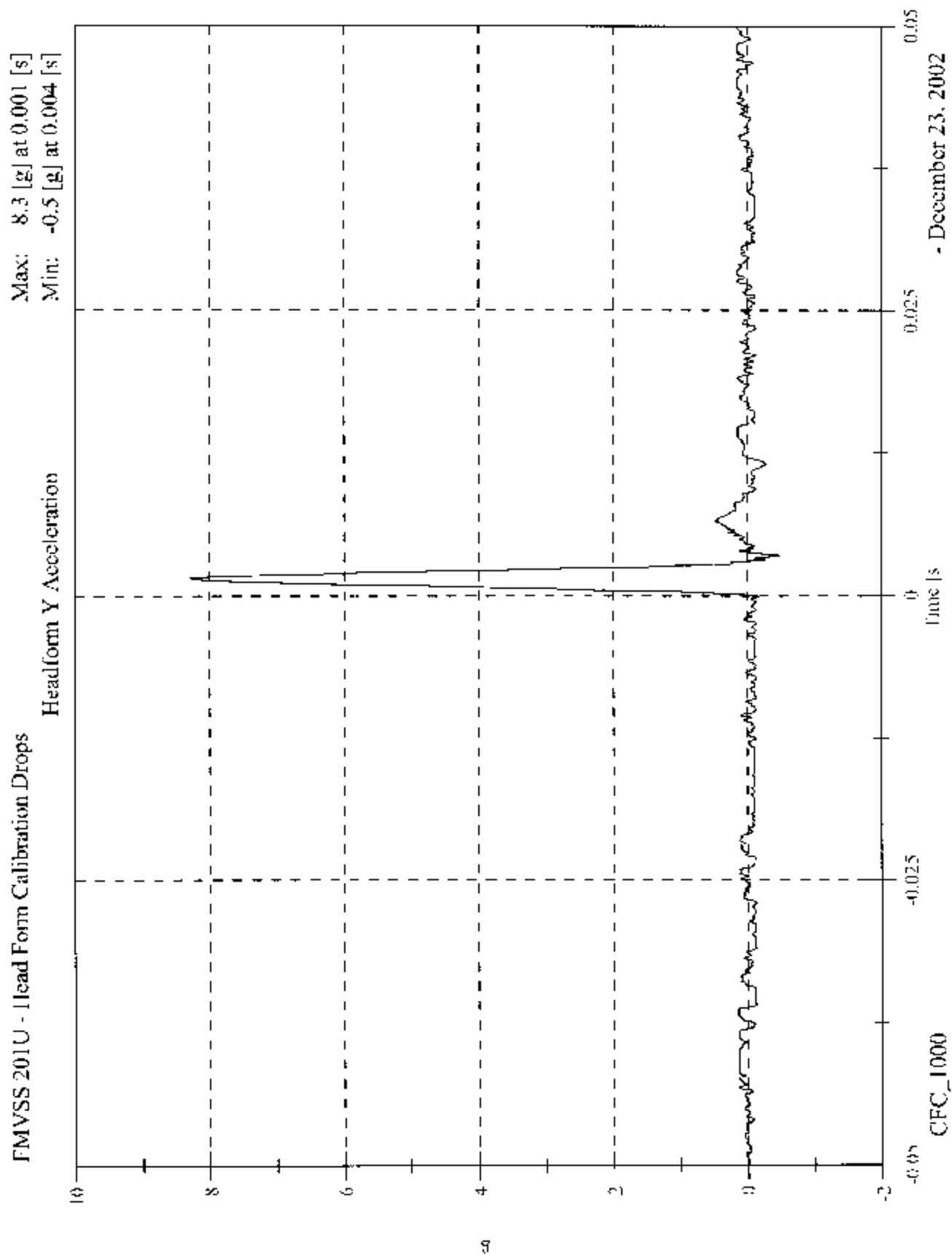
Max: 0.6 [g] at 0.012 [s]

Min: -198.6 [g] at 0.001 [s]

Headform X Acceleration



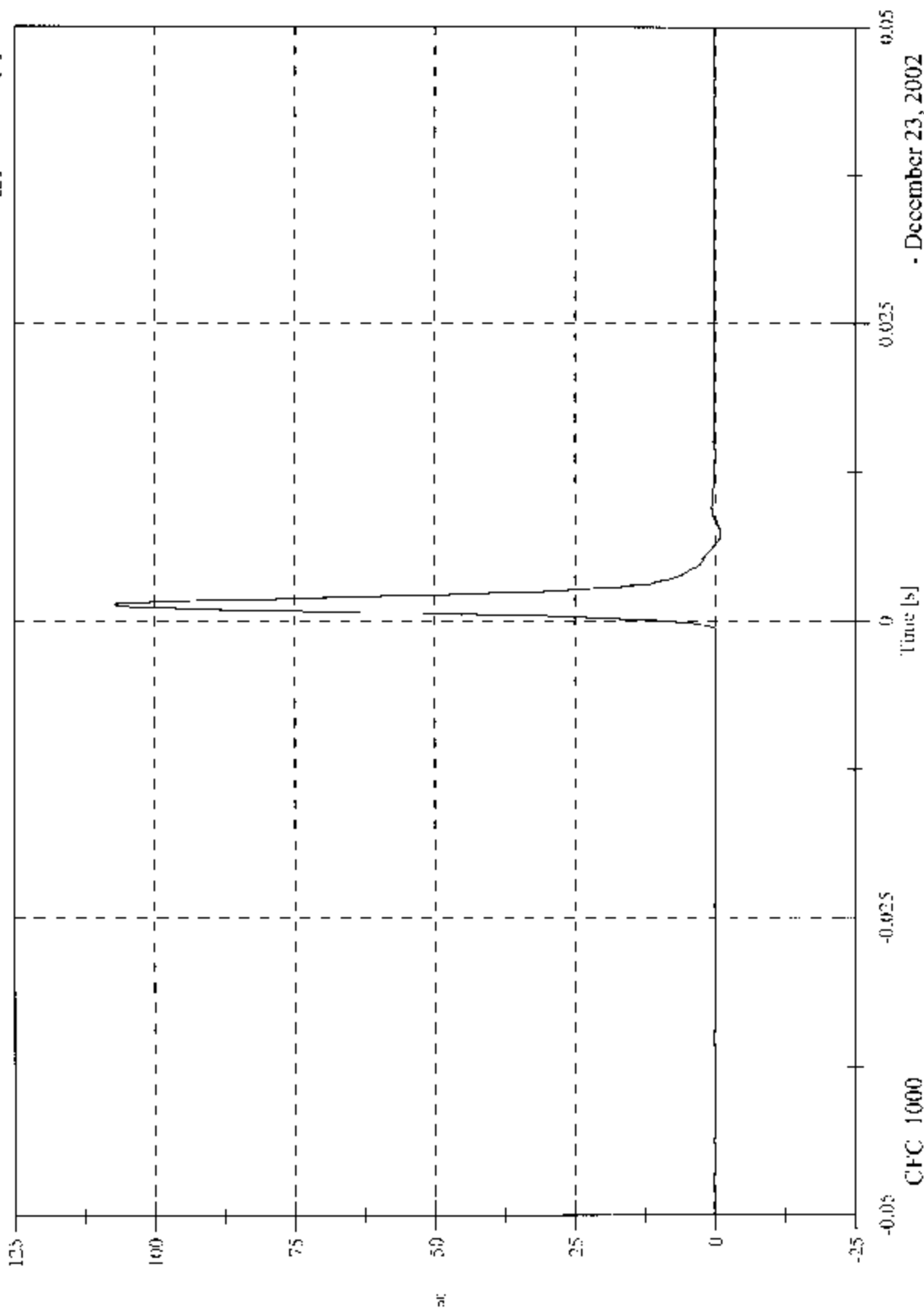
- December 23, 2002



FMVSS 201C - Head Form Calibration Drops

Max: 107.1 [g] at 0.001 [s]
Min: -1.0 [g] at 0.007 [s]

Headform Z Acceleration

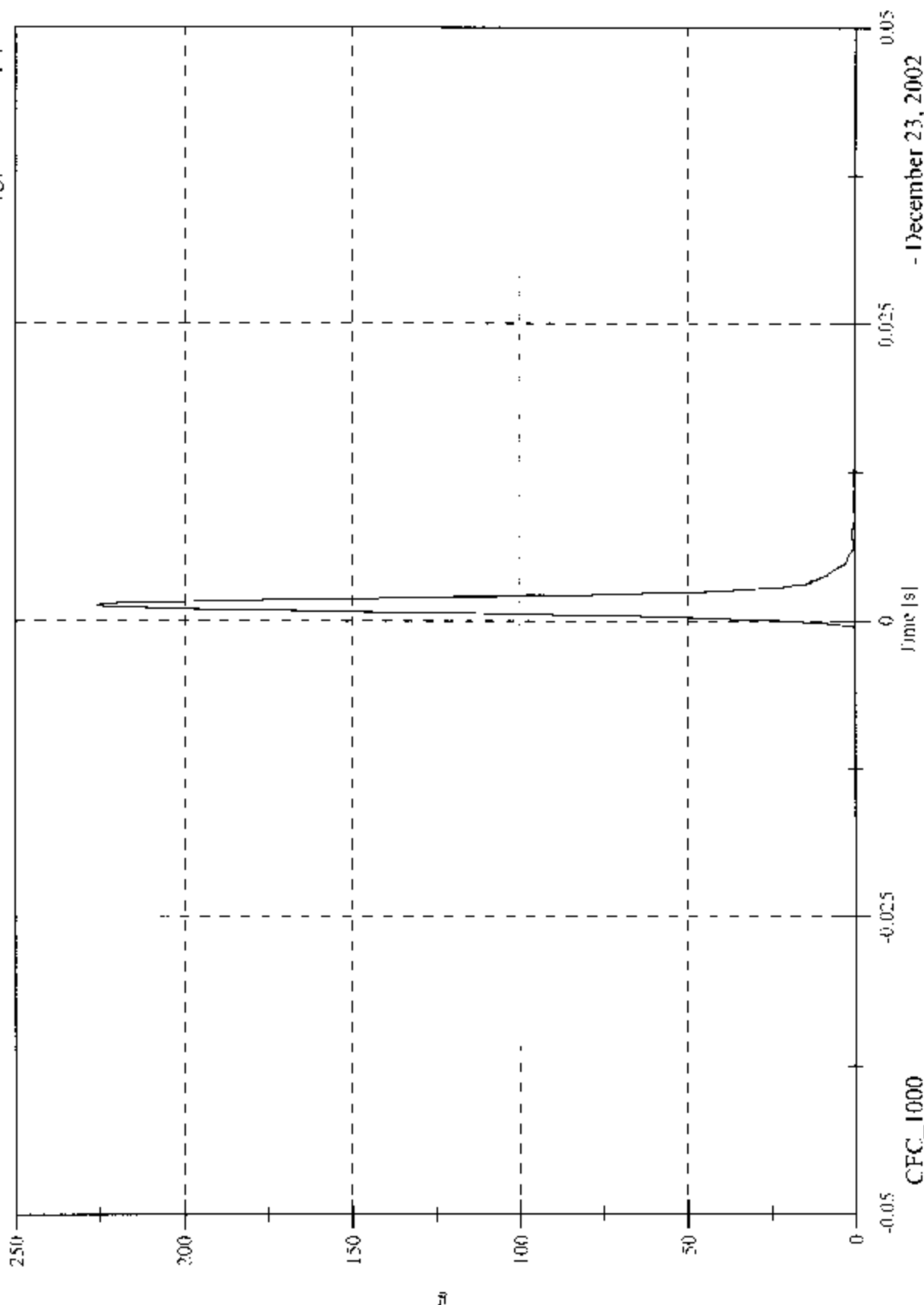


- December 23, 2002

FMVSS 201U - Head Form Calibration Drops

Max: 225.6 [g] at 0.001 [s]
 Min: 0.0 [g] at -0.044 [s]

Headform Resultant



- December 23, 2002

PART 5721
HEAD DROP POST-TEST

MANUFACTURER:	APPLIED SAFETY TECHNOLOGIES CORPORATION	
SERIAL NUMBER:	1255	
CALIBRATION DATE:	December 23, 2002	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	21
RELATIVE HUMIDITY	10% to 70%	23
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	257.3
PEAK LATERAL ACCELERATION	15 Gs Maximum	5.6
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

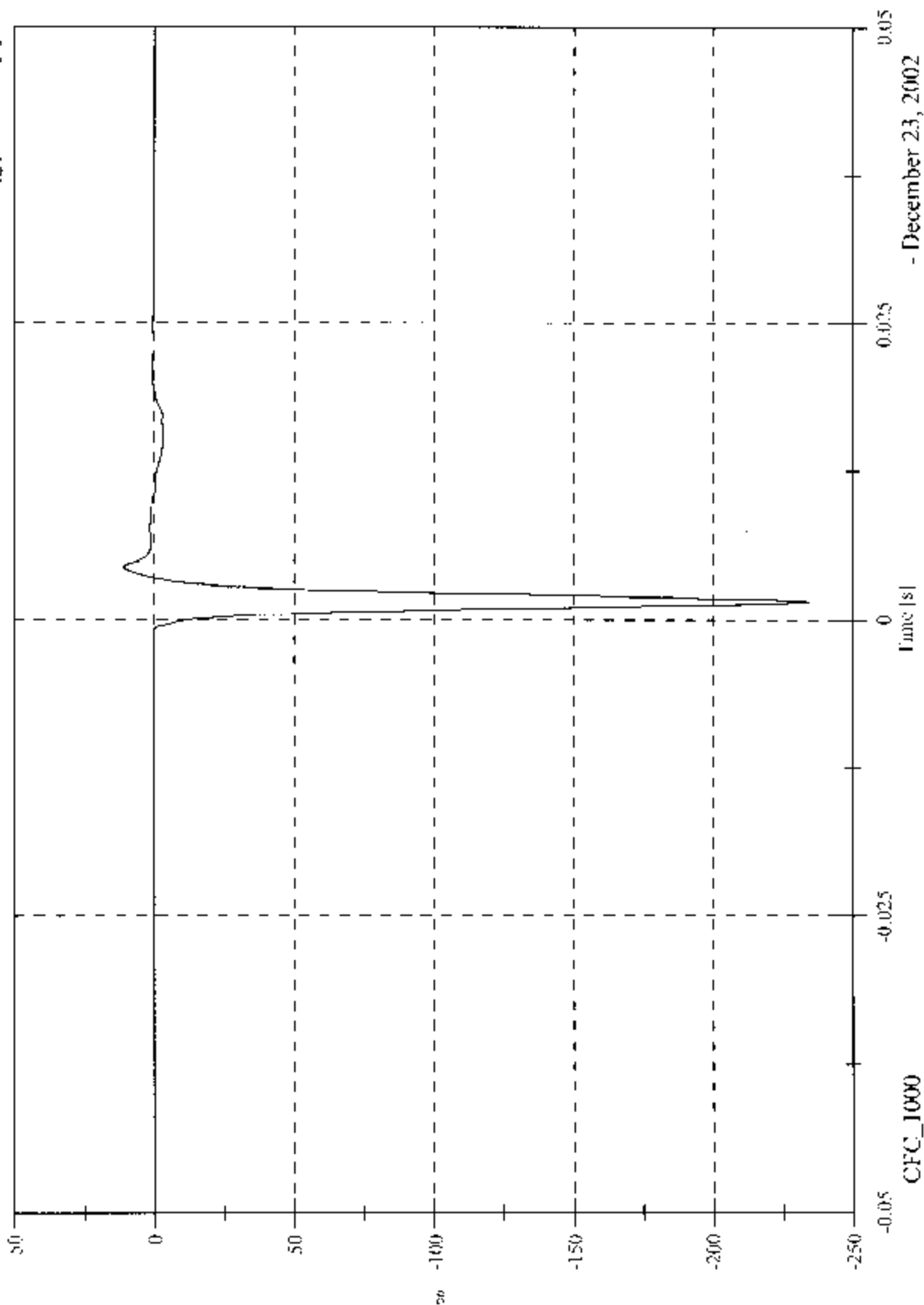
ID. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J41006	9/02	3/03
2 - LATERAL	ENDEVCO	7264-2000T	J40994	9/02	3/03
3 - VERTICAL	ENDEVCO	7264-2000T	J41007	9/02	3/03

REMARKS:

FMVSS 201U - Head Form Calibration Drops

Max: 10.8 [g] at 0.004 [s]
Min: -235.4 [g] at 0.002 [s]

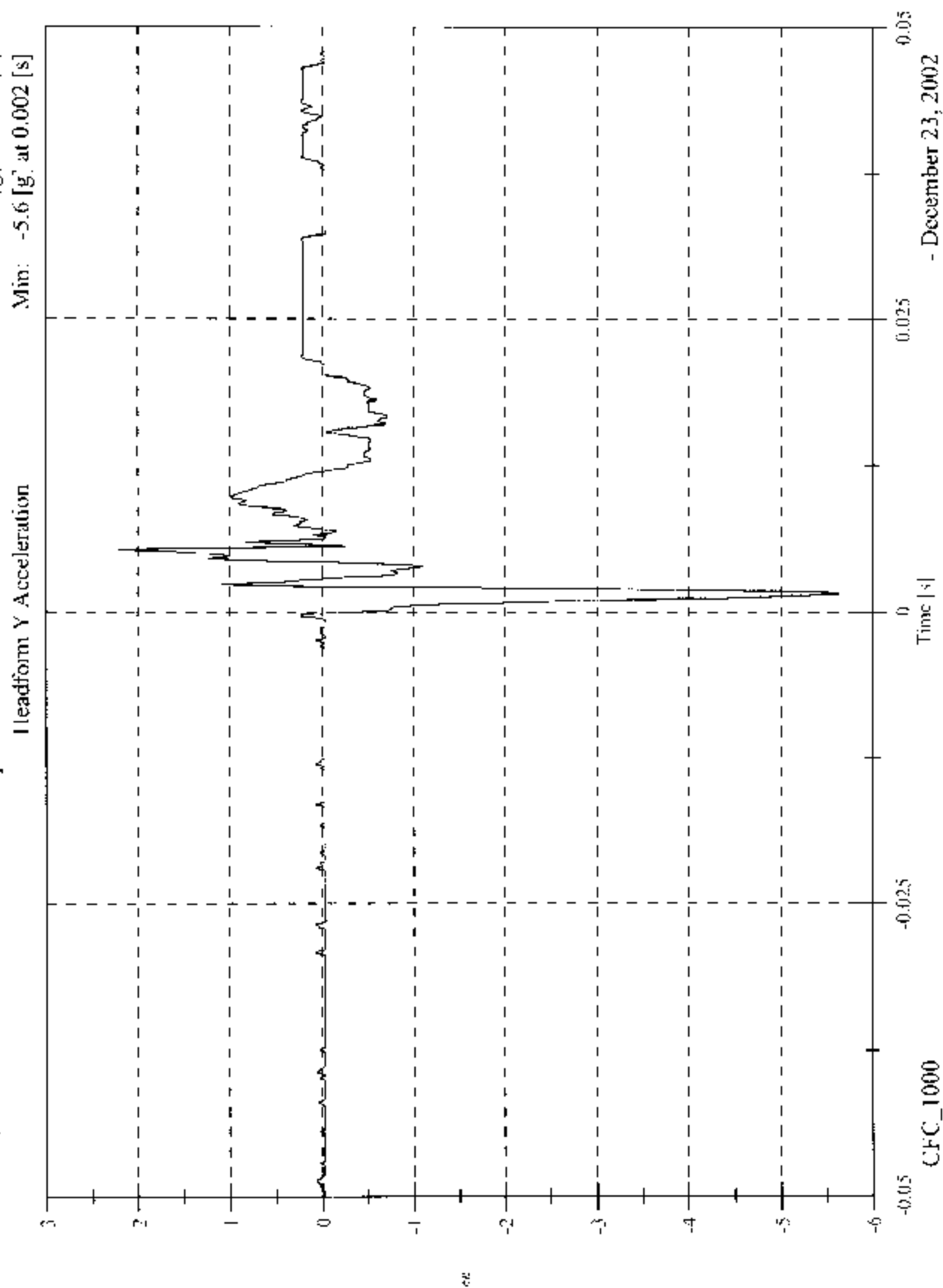
Headform X Acceleration



- December 23, 2002

FMVSS 201U - Head Form Calibration Drops

Max: 2.2 [g] at 0.005 [s]
Min: -5.6 [g] at 0.002 [s]

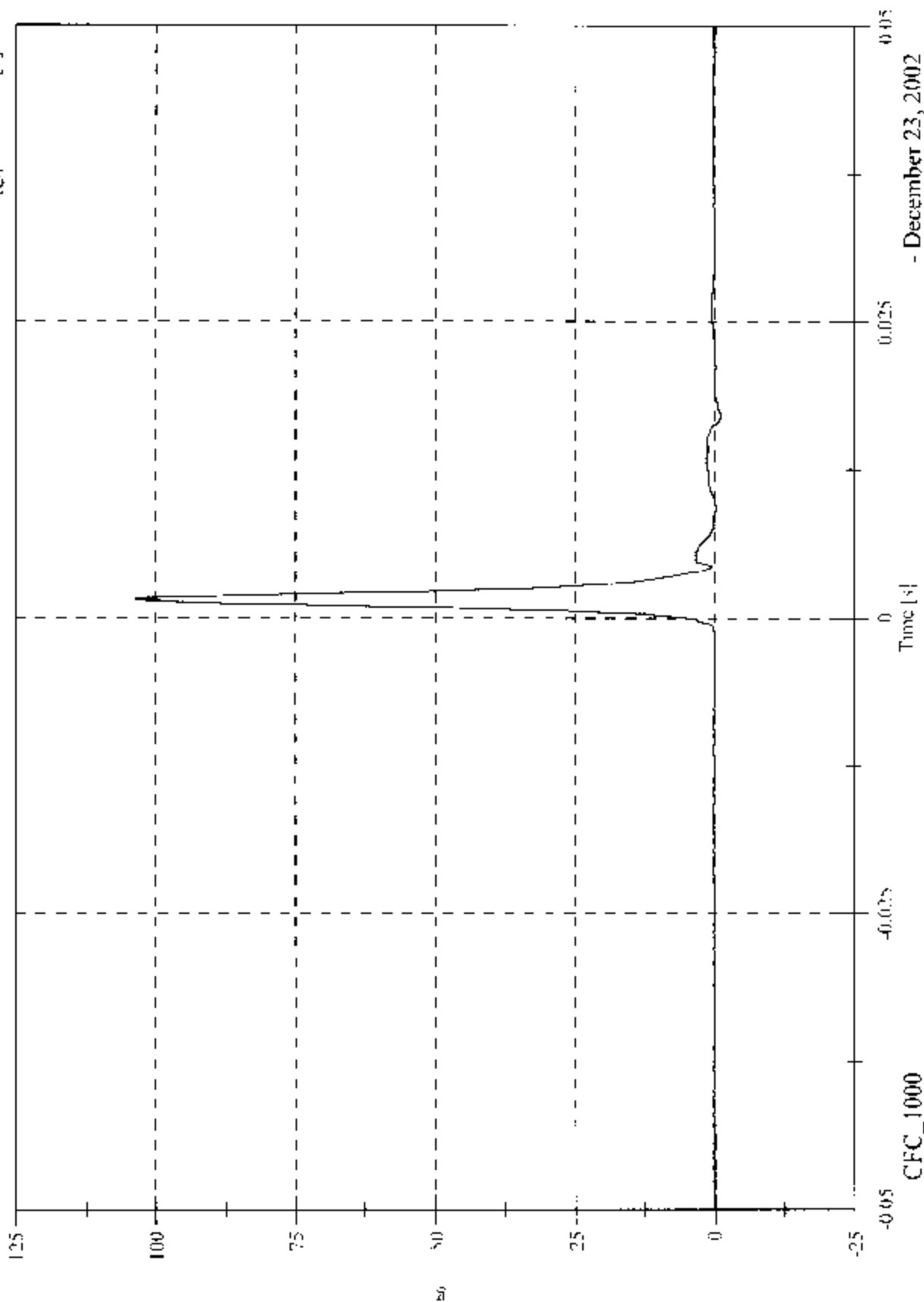


- December 23, 2002

FMVSS 2010 - Head Form Calibration Drops

Max: 103.7 [g] at 0.002 [s]
Min: -1.2 [g] at 0.017 [s]

Headform Z Acceleration



- December 23, 2002

